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Leading Article

Manchester's Architect's Department

MANCHESTER CORPORATION in November last were recommended by their general and parliamentary committee to proceed with the appointment of a new city architect in succession to MR. LEONARD HOWITT, whose distinguished tenure of office was coming to an end, and to request the person appointed to review the present organisation, direction and control of the department, and to make recommendations. This review has now been undertaken by MR. S. G. B. ROBERTS, who succeeded Mr. Howitt, and the results are contained in a report which was considered, and the recommendations therein approved, by the Corporation on November 1.

This report (a summary of which is given on page 917) must necessarily create much interest, and not only among local authorities and their architectural staffs; its implications affect architects in private practice, elsewhere as in Manchester. In it the City Architect, who has had the help of a professional organisation and methods unit, which had in fact reported before Mr. Howitt left, proposes the replanning of his department as a business organisation operated with a central management controlling the work-flow through the department and maintaining an economic output of work from the six divisions by which the architectural and planning work will be carried on. The immediate aims are to 'check the unplanned growth of the department'; to co-ordinate its activities; to retain senior professional officers and assist in recruiting additional staff (incidentally, also, to avoid the necessity of employing private professional consultants said to be involving the corporation in some £80,000 in fees annually); and to take steps to bring the various departments under the architect's charge (at present scattered in different buildings) into closer relation.

The report indicates the proposals intended to bring this about. The reorganised department will work under the City Architect, his deputy and six divisional heads, whose work will be co-ordinated by a Management and Planning division headed by a Department Manager in charge of what is, in effect, complete production control. Salaries and gradings will be stepped up, as required, some senior posts additionally created, and the whole structure will be related to an average annual turnover of £4m. worth of Corporation building work. The aim is to make the department's building programme independent of any assistance from private professional sources, once the transitional period is over, 'but,' states the report, 'the necessity must eventually be restricted to use only when an influx of work in a particular year is of such a volume as to raise the demand for the services of the Department above the "norm" of £4m. per annum.'

So far outlined, the proposals will be accepted as businesslike with the exception of three points which, expressed as questions, are: (1) What happens to the economics of the scheme should the 'norm' of £4m. not be reached? (2) Do the upgraded posts and salaries add any new blood to the total pool in Great Britain of technical assistants?

(3) Is it in the best interests of a great city, architecture-wise, that the private practitioner should be virtually debarred from contributing to the city's stock of buildings? No doubt, these points will be fully debated elsewhere. But they should be answered officially.

Interest, and comment, will also attach to the basis of calculation on which the proposals have been worked out. This, briefly, has been to assess 'the permissible expenditure on staff salaries' as £234,100 per annum—this figure being arrived at by taking one-half of the fees that would have been payable to private architects and other consultants carrying out an annual programme costing £4m. at scale fees. This 'distribution formula' derives from the following thesis in the report: 'In private partnership in the building professions the fees earned are distributed in accordance with one of a number of generally accepted formulæ. One such formula, and perhaps the most convenient for our purpose, is to divide the fee into two equal parts and to allocate one half to staff salaries and the other half to profit, administration and partners' salaries.'

It is the conclusion drawn from the calculations that may cause some eyebrows to lift. This is that the 'profit' accruing to the Corporation on the operation of the scheme 'represents a saving of over 28 per cent on the professional fees which would be charged if all the work were entrusted to private consultants.' The method of arriving at this conclusion and the figures on which that conclusion is based, are given in our summary of the report, and we shall be surprised if they pass unchallenged.

Our comments are not to be taken as critical of an enterprising attempt to rationalise an important local authority department; this deserves commendation. But it nevertheless seems necessary, in the interests of private architects, of other local authority departments that are seeking to maintain their existing gradings and who may well find difficulty in holding their staff, and of the public who will be paying for any increase in operating costs, that the validity or otherwise of the assumptions (as distinct from reorganisation proposals) made in this report should be fully tested before being adopted elsewhere.

Notes of the Week

Backstage at the RIBA; The Future of Lincoln; Good Information Pays; The QS' Service

SINCE SIR BASIL SPENCE, as PRIBA, started the practice of meeting the technical Press following the monthly meeting of the Council, there has probably not been a Press conference with so little to report as last week's. This is not to be interpreted, of course, as meaning that the Council and Committees of the Royal Institute of British Architects are not hard at work, as usual, but rather that so many matters are at a delicate stage of negotiation that premature publicity would do more harm than good.

One subject currently being studied by the Practice Committee, and to which the President drew attention, is of considerable interest to principals in private practice—that of securing adequate indemnity for possible legal claims. The insurance companies are demanding substantial increases in the premiums required to cover such claims, and in this they have been influenced by a number of factors, including the introduction of new building techniques and materials, the increasing 'claims-consciousness' of the public, the introduction of legal aid which encourages the less well-to-do to sue and the increasing cost of building, which directly affects the architect's financial responsibility to his client.

While the details cannot yet be made public, Sir William Holford intimated that the Practice Committee had produced a report which contained some useful recommendations for making such insurance cover less prohibitively expensive than it is at present, to which the Council had given its general approval. This was something, he said, that would become quite an issue in the near future, and he felt that it was essential that a satisfactory form of indemnity cover be provided. When it is considered that a claim in the region of £10,000 to £20,000 is not uncommon, and claims have been reported in excess of £100,000, the urgency of protecting architects from this threat becomes apparent.

Another matter currently under consideration is that of the appointment to the permanent staff of the RIBA of a Management Advisory Officer, who would be concerned initially with the organisation of courses. The suggestion arose from the report of the Management Conference held at Roffey Park, Horsham, in May last. Whatever decision may eventually be taken, the fact that such an appointment is under consideration is an indication of the increasing importance of the problems of management in architectural practice today.

NEW VISTA OF ST. PAUL'S.—*The new prospect of St. Paul's Cathedral that will be opened up on the completion in September, 1963, of the £1¼m. Crest House, a new office project (incorporating shops, a restaurant and a museum for the College of Arms) with frontages to Queen Victoria-street, on which Taylor Woodrow (Construction) Ltd. began work last April for Metropolitan and Provincial Properties Ltd. In the foreground is a landscaped piazza. The buildings, the highest of which will rise to 70 ft., will be faced in granite and black slate. The development will straddle Knightrider-street (left foreground) and existing buildings in Carter-lane will be demolished. The architect is Mr. Alec Shickle, ARIBA, of Campbell-Jones & Sons; the consulting engineers, Malcolm Glover & Partners; and the quantity surveyors, Widnell & Trollope*

The Future of Lincoln

A FEW WEEKS AGO we illustrated the winning design for the new Civic Centre at Lincoln which will undoubtedly make an important contribution to the planning of this famous cathedral city. But where is the comprehensive development plan to show anxious citizens what is proposed for the rest of the town where new developments are proceeding apace?

The question is asked in the light of two brochures which have been issued. They have been prepared by the Lincoln

branch of the Nottingham, Derby and Lincoln Society of Architects in an attempt to arouse interest and concern about the future of their city. The first of these, entitled 'The Future of Lincoln is your Concern,' is in the form of an illustrated folding pamphlet designed for popular appeal in the question-and-answer manner, with such pertinent questions as 'Do you know of the proposed development for Lincoln? If not, why not?' For those interested to go further into the matter there is a second and more seriously worded document which sets out to inform its readers what is wrong and what is needed to put matters right. In a nutshell, what is wrong is that there is no comprehensive development plan for the town, and what is needed is a competent architect-planner to take charge of the city's development before it is too late.

* * *

THE PEOPLE OF LINCOLN should be grateful to their local architects for being on the alert. Lincoln is a cathedral city and deserves the same careful planning as Durham and Canterbury. It is obvious that a great deal of expansion is about to take place, and the architects are performing both a civic and a national service in calling for imaginative and considered comprehensive planning, carried out by competent planners. They question the validity of the inner ring road which so far appears to be the only gesture to planning made by the Council; even this, we are told in the pamphlet, is shown as 'no more than two lines on a map.' The pamphlet goes on to tell us that 'the implications of these two lines are enormous and will change the whole structure of the city centre, yet there has been no public discussion of the basis on which the plan is made.' It also asks: 'Is there no alternative to the spec. builder's sprawl? Are we doomed to the disaster which has ruined the outskirts of so many cities, which is spreading round Lincoln like a cancer, particularly to the south?' A more imaginative use of the river is called for and a plan for the famous hillside on which stands the cathedral, the castle, the Jew's House and Jews' Court.

DR. WALTER GROPIUS *pictured at the Architectural Association on November 8 during his recent visit to London. To the left is Mr. J. C. Pritchard, who was Dr. Gropius's host when he first came to England in 1933*

* * *

THE ISSUES which the Lincoln Society have raised apply to situations elsewhere than Lincoln. The failure of authority to make known their planning proposals and to invite expressions of opinion from interested citizens is not without precedent: witness the silence of British Railways to make known the details of their plans for Euston! It will be interesting to see whether the citizens of Lincoln rise to the battle-cry of their local architects and whether the city fathers can be roused or coerced into mending their ways.

Good Information Pays

THE STING was in the tail at the Building Centre's Forum on November 8 (writes Mary Haddock) when the subject of 'Trade Literature for the Building Industry' was discussed. Mr. Eric Bird, as chairman, had permitted an atmosphere of restrained satisfaction to pervade the meeting when he introduced the new 'Guide to the Preparation of Trade Literature,' sponsored by the RIBA, the RICS and the NFBTE and published by the Building Centre; but in closing the meeting he confessed to having a final brick to throw. He spoke of the excellence of a German catalogue which had recently appeared on his desk, printed in four languages, easy to open and lovely to look at. The Continentals, he said, are far ahead of us in building documentation, and manufacturers here will need to pull up their socks when we enter the Common Market if we are to hold our own. He did well to send his audience home with this thought topping the rest, for the evening had been fruitful of ideas on this controversial subject.

* * *

MR. ANDREW DERBYSHIRE, chairman of the RIBA technical information committee, spoke of the new guide as a landmark, because it was an agreed document between three parties who had spent a lot of time saying they could not possibly agree. He gave a very clear exposition of his own views on what he wanted from the industry in the way of information, and of how he wanted it delivered. In effect, he wanted no unsolicited mail and no uninvited callers, whilst technical information must be clearly distinguished from sales propaganda so that never the twain might meet. Good information pays, he said.

Representatives of manufacturers present welcomed the new Guide, for now at long last they knew what the users of their materials wanted. But, as Mr. Dargan Bullivant pointed out, this was the beginning not the end of the story and no time for congratulation, since the production of information on a sizeable scale had not yet been tackled.

* * *

THE MEETING could only touch on the problems still to be faced. An institute of building documentation is clearly something that the industry is beginning to think seriously about, whilst the cry for regional dissemination of trade information is rising to a crescendo. Mr. Gontran Goulden was sufficiently moved by the cry to confide his view that nobody in the country ought to be more than fifty miles away from a building information centre. Regional centres, he said, should have the same records and services as the Building Centre in London, but without the exhibition. Such centres would cost £5,000 a year to run. How are these to be financed? How much is the industry prepared to spend? There is much sober thinking to be done on this vast new subject which has at long last raised its head above water.

The Quantity Surveyor's Service

TO SAY that estimating is the architect's responsibility and that bills of quantities could be used by builders for site ordering and control might seem both ridiculous and naïve. In the context of a series of five lectures held recently at the Bristol Building Centre, however, it makes good sense. The object of the series is to summarise the forms of communication, management techniques and efficiency of the professional team in the industry and to endeavour to find ways of improving the various systems. The first lecture, held on September 21, took the form of a discussion group led by Clive Browning, surveyor, and Raymond Moxley, managing director of the Centre. It was decided that although the standard bill of quantities was best for the estimator, an elemental bill with palatable information for the architect and site agent, produced by some computer system, was also desirable. It was felt that the standard 'bill' suffered from too much detail and the latter might well simplify this. The second lecture, by G. Berry, surveyor, dealt with approximate estimating, and the third, by R. Lane, surveyor, with cost planning. The faults and ideas put forward in the first three of this series surely demonstrate the need for a revision of the tendering techniques universally used and for a variation of the standard bill of quantities.

Poet's Corner

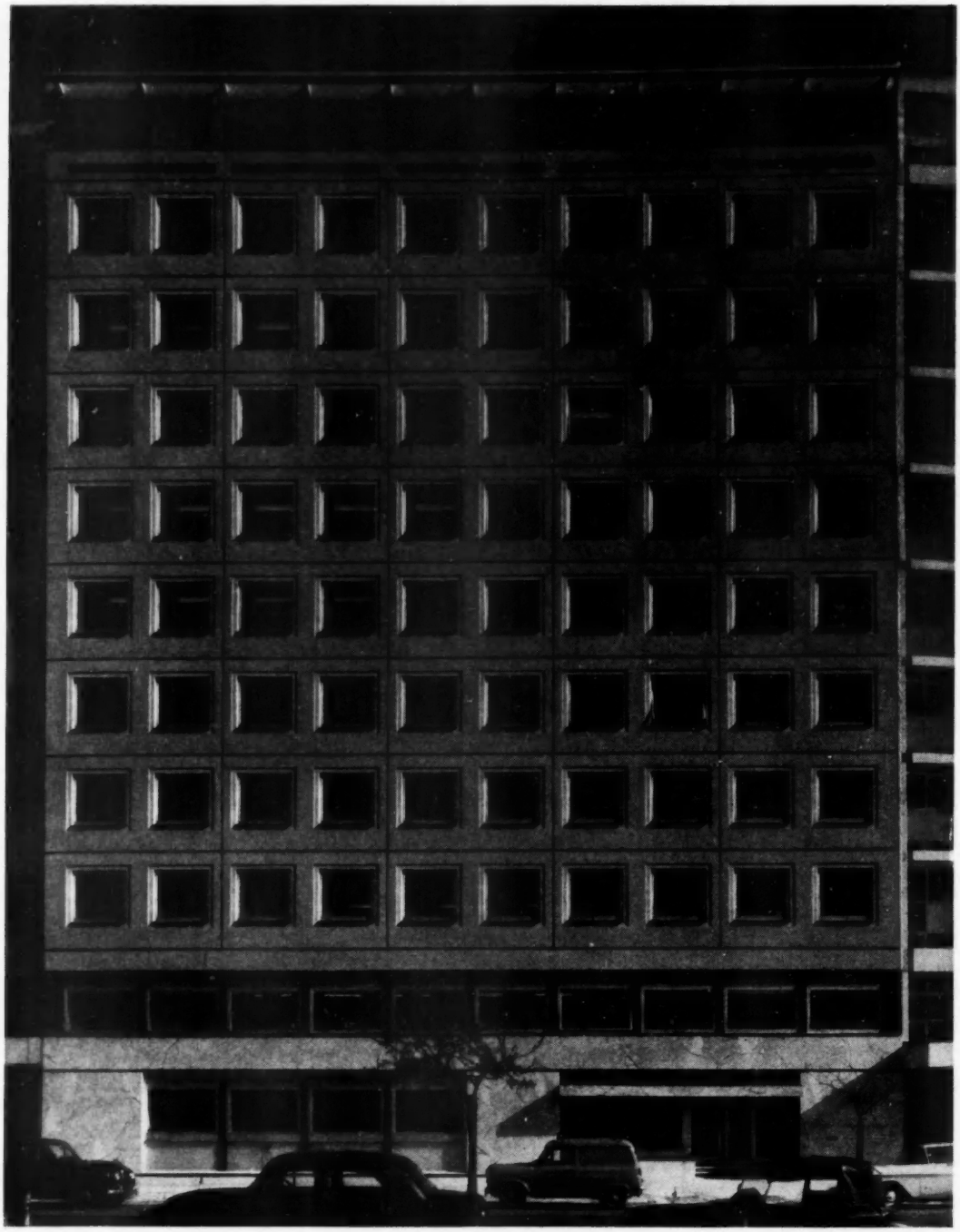
DR. CHARLES HILL, Minister of Housing and Local Government, opened the Building Exhibition at Olympia last Wednesday.

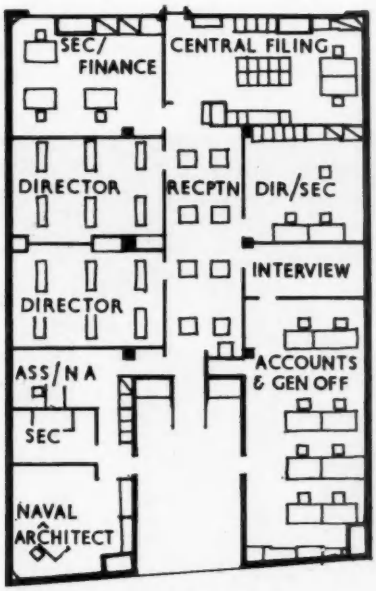
Dear Dr. Hill, in days gone by,
As listeners remember,
You often told us *how* to live;
Now in this bleak November,
With thousands in the need of homes
And many in despair,
We'd be most grateful to you if
You'd kindly tell us *where.*
This wealth of fine materials
Enthusiasm rouses;
Do tell us where to find the land
To turn them into houses!

ANON.

Offices, Albert Embankment

CLIVE PASCALL, PETER WATSON & ASSOCIATES, architects
CYRIL BLUMFIELD & PARTNERS, consulting engineers
C. E. BALL & PARTNERS, quantity surveyors
GEE, WALKER & SLATER LTD., general contractors

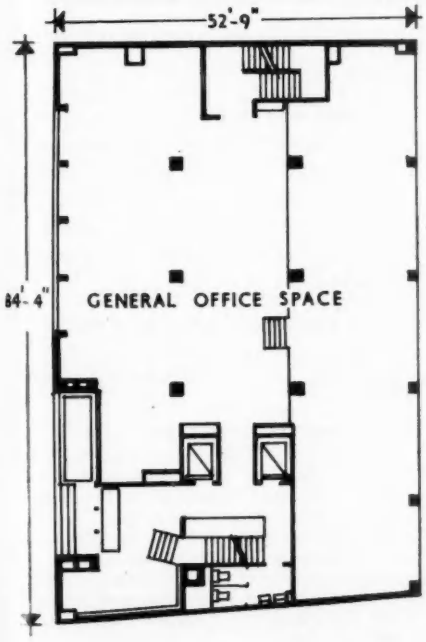




RECEPTION, SEVENTH FLOOR

a director's office

GROUND FLOOR, Scale: 1 in. = 24 ft.



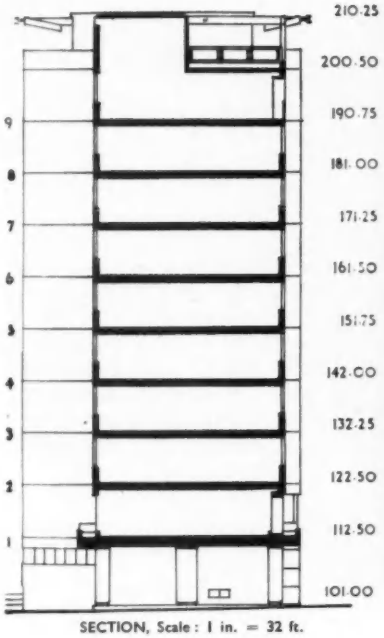
PRINCE CONSORT HOUSE is a recent link in the chain of articulated offices fronting this stretch of river. Continuity of floor levels and overall heights had to be maintained, and because of the similar proportions of the adjoining blocks the design problem chiefly resided in providing a façade which would both harmonise and contrast.

There are ten floors of offices over two basements, with a total volume of 550,000 cu. ft. and total area of 54,850 sq. ft. Construction is based on a system of solid in situ reinforced concrete external walls punctuated by windows and without columns. Internally, there are six columns arranged in a double row to give bays measuring 16 ft. 4 in. longitudinally, and an average of 17 ft. 6 in. transversely. Solid in situ reinforced concrete floor slabs 7½ in. thick have been used, and it is interesting to note that this thickness is more economical than a 6½ in. slab, which could have been used but would have resulted in increased shear forces and required considerably larger internal columns.

Mechanical ventilation is provided on all floors, with a plant room situated on the roof. The plan of the plant room, however, does not in any way coincide with the structural system below. It was therefore necessary to provide twin prestressed concrete lattice beams, spanning 84 ft. from end to end of the building, to form the walls of the plant room ; the beams are independent of the main structure below. The plant room is roofed with cantilevered canopies, designed to give a 'floating' effect ; no external columns were therefore permissible in this roof structure from the architectural point of view.

A lattice form of beam was chosen

Offices, Albert Embankment



SECTION, Scale: 1 in. = 32 ft.

the conference room

because large openings are required for air intake and extract. The beams are of in situ concrete post-tensioned on the CCL system, each carrying a load of 100 tons. The end connections between the lattice beams and the main structure below were detailed to allow for free horizontal movement and rotation.

Secondary roof beams support the canopies which are cantilevered out 10 ft. These beams are also of in situ concrete, post-tensioned on the same system in order to keep the depth of the beams down to the required minimum; they were really the deciding factor in the whole system of stressing for the plant room structure.

The external concrete walls above ground are generally 7 in. thick. Woodwool was used as permanent formwork for their inner surfaces, giving a total wall thickness of only 9 in., but with a very good thermal insulation value (U = 0.18). The external formwork to the front and rear walls was made in 16 ft. by 10 ft. panels and raised to the required level by a system of winches. This system of construction enabled a complete storey, including walls, columns and floor slab, to be completed every ten days.

The external faces of the building are divided into bays to facilitate the jointing both of the structural and facing materials. The joints are formed with extruded anodised aluminium channels. The external facing material is of variegated mosaic, and in order to use the Swedish 'Modocoll' system of adhesion (involving the use of a thin screeding containing 'Modocoll' additive to perfect the bond) a tolerance of $\pm \frac{1}{8}$ in. was specified for the concrete in the external walls. Windows throughout are double-glazed with special aluminium extrusions and plastic sealing strips.

The final contract price was £178,889, giving a cost of 70s. per sq. ft. floor area.

sub-contractors & suppliers:

Entrance screen and doors: Ajax Architectural Products Ltd.; *lift installation:* Bennie Lifts Ltd.; *marble:* H. T. Clements Ltd.; *electrical installation:* A. Dean & Co. Ltd.; *heating and ventilation installation:* G. N. Haden & Sons Ltd.; *aluminium windows:* Mellowes & Co. Ltd.; *ironmongery:* Alfred G. Roberts Ltd.; *floor tiling:* Wallflor Coverings Ltd.; *mosaic:* Dennis M. Williams Ltd.

Manchester City Architect's Department

Radical Reorganisation Approved by City Council

A REPORT on the reorganisation of the department, prepared by the City Architect, Manchester, Mr. S. G. B. Roberts, DipArch, ARIBA, under the terms of his appointment, was approved by the City Council at its meeting on November 1. The reorganisation proposals create some attractive vacancies on the staff, which were advertised in 'The Builder' of November 10 and again in this issue.

In brief, the Department has been replanned on lines which relate the salary expenditure to the fees which would be earned on a given volume of work; the Department has, in fact, been conceived as a business organisation operated with a central management controlling the flow of work through the department and maintaining an economic output of work from all divisions. To attain the highest efficiency, the entire department should be brought together in adjoining offices, the report recommends.

Saving in Consultants' Fees

The report states: 'When fully operational the new organisation should enable the department to contain the total demand for its services from the employing committees of the Corporation within a 'norm' of £4m. per annum and will thereby effectively avoid the cost to the corporation of private consultants' fees which have, in the past, amounted to some £80,000 per annum.'

Of recruitment of officers to the new establishment it is said: 'This will not be accomplished quickly and certain difficulties created by the present organisation will have to be rectified gradually. The Committee [Town Hall] must, therefore, expect some time to elapse before maximum efficiency is attained. During the transitional period it may still be necessary on occasions to employ private consultants, but the necessity must eventually be restricted to use only when an influx of work in a particular year is of such a volume as to raise the demand for the services of the department above the norm of £4m. per annum.'

Existing Staff

Of the question of the existing staff, the report says: 'A major problem in any reorganisation is that of existing staff. In the present proposals the existing establishment has received certain consideration but has not been allowed to militate against the design for a departmental structure giving maximum co-ordination and efficiency. It is not intended that all posts shall be filled from existing staff, and, in a number of instances where the proposed grading of a post is higher than the present occupier is receiving, it will not follow that this person will automatically receive the higher grade.

'Similarly, if a post is graded lower than the present occupier is receiving, the succeeding occupier will revert to the lower grade when the present occupier relinquishes the post.'

The report continues: 'Even the ideal design for an efficient organisation may fail if the responsible officers are not carefully selected. The appointment of the Divisional officers named in the report is considered to be the essential key to the success of the reorganisation proposals.'

Present and Future Organisation

The report outlines the present organisation of the department which is contained within nine sections. 'The unplanned growth of the department is the cause of considerable difficulties,' says the report. 'The present size of the department also cries out for some central control and management to co-ordinate the entire departmental activities. A problem over the years has been the difficulty of retaining senior professional officers because of inability to award adequate salaries. . . . It has been found necessary, because of the impossibility of filling technical vacancies, to employ private professional consultants at an average total expenditure in fees of some £80,000 per anunm. A major cause of inefficiency is the distribution of the various sections of the Department in widely scattered offices within the Town Hall premises and over the city. The

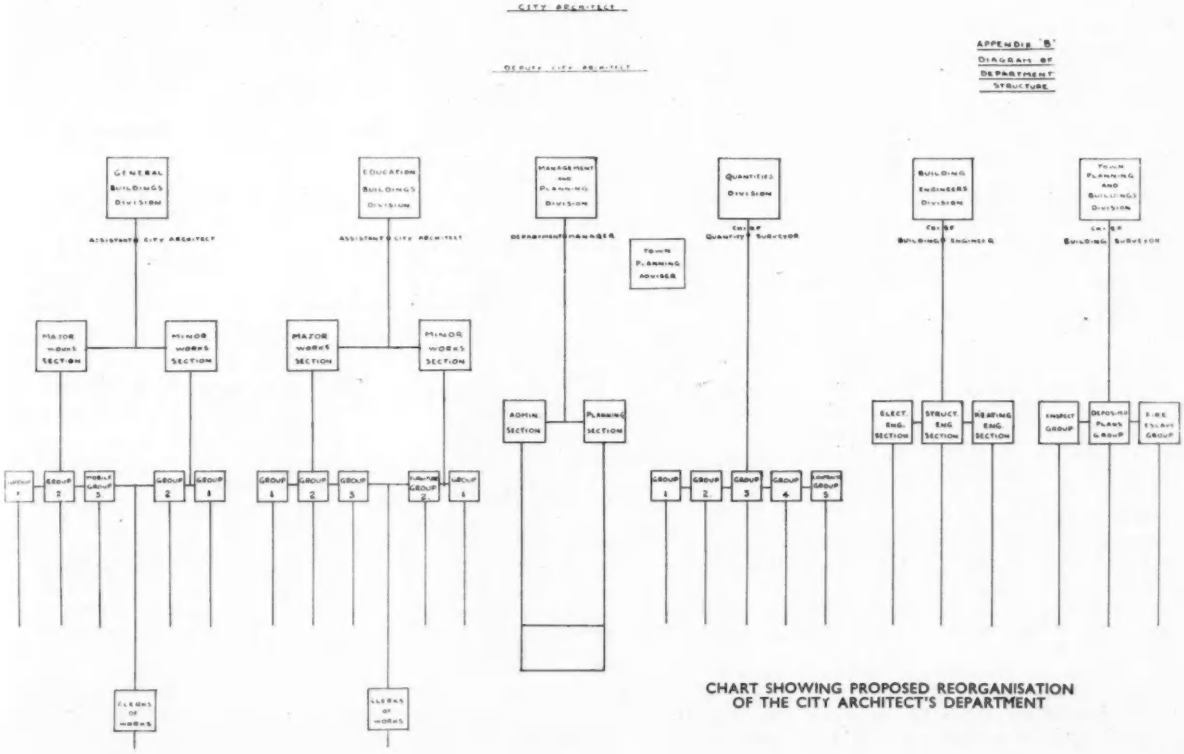


CHART SHOWING PROPOSED REORGANISATION OF THE CITY ARCHITECT'S DEPARTMENT

effect of this is well expressed in the Report of the O and M unit in the following words: "The Unit have not, in their previous reviews, encountered an instance where the disintegration of a department has had such a pronounced effect upon its administration."'

Proposals for re-organisation must accomplish two things, it is stated: (1) Elimination of the causes of difficulty in the present organisation; (2) Introduction of new ideas for greater efficiency. To eliminate the three main causes of difficulty, the report proposes replanning the organisation and establishment to meet the known annual average volume of work (on broad average over the years 1959-61 £4m.); ensuring that the present senior professional officers are retained by award of adequate salaries, and the provision of a sufficiency of establishments at attractive grades to compose a staff conspicuous for quality rather than quantity; and securing the physical integration of office accommodation.

Designing the Establishment

The most realistic approach to the creation of an appropriate establishment, according to the report, is to consider the fee-earning capacity of the department on the recognised professional scales 'in an exactly similar way as would be done in commencing a private professional partnership to meet an anticipated annual turnover. In private partnership in the building professions the fees earned are distributed in accordance with one of a number generally accepted formulae.

'One such formula, and perhaps the most convenient for our purpose, is to divide the fee into two equal parts, and to allocate one half to staff salaries and the other half to profit, administration and partners' salaries. On the basis of this formula with a known annual turnover it is possible to calculate the total amount which may be paid in salaries to staff to ensure an efficient and economically sound organisation. . . . Taking the norm of £4m. the fee earned at the minimum scale charge of 6 per cent would be £240,000 per annum. Applying the distribution formula, this would give £120,000 as the permissible economic expenditure on staff salaries. That is a minimum of £60,000 per annum for each of two Architectural divisions. Some latitude must be permitted, however, because of the difficulty of assessing fees that would be earned on the many minor works and alterations and extension schemes.' Detailed proposals for establishing these two Architectural divisions are outlined in appendices to the report.

Quality Rather Than Quantity

The report continues: 'The total salary available, however, has not been spread over numbers but has been allocated with a view to securing quality of staff rather than quantity, and to retain senior staff of proved efficiency. Provision has also been made for recruitment of both trainees and newly qualified assistants, and a chain of promotion has been provided through the grades. The clerks of works sections within each division have been designed to meet the volume of work established by the "norm." Salaries of clerks of works, however, for comparison purposes, are not to be set against the fee-earning capacity of the Division as the provision of the services of a clerk of works is not included in the architectural scale fees.'

Building Engineers' and QS Divisions

Global salary amounts for the Building Engineers' Division and the Quantity Surveyors' Division are calculated on a similar plan. The Engineers' Division salary total is put at £63,750, calculated at 7½ per cent on a work value estimated at an annual average of £1,700,000. Salary total for the QS division is to be £70,000, calculated at 3½ per cent on the annual figure of work of £4m. In each case global salary amounts represent 50 per cent of the total fees attributable, applying the distribution formula.

The report stresses that, in the event of the norm being exceeded, or being likely to be exceeded in any one year, the City Architect will, in the case of the Architects' Divisions, immediately report the circumstance to the Committee and recommend appropriate action. In the case of the QS division, 'if it is found that, despite the introduction of a planned work flow, it is still necessary on occasions to entrust quantity surveying work to private consultants, then this Division will be augmented by additional staff.'

Management and Planning Division

The total professional fees earned by the architectural, engineering and surveying Divisions amounts to £507,500, states the report which adds: 'Taking all proposed grades at their maximum, the sum of £234,100 has been distributed in professional staff salaries in the four Divisions, leaving a balance of £273,400 for profit, administration and partners' salaries. The partners will be, in effect, the City Architect, Deputy City Architect, and the six divisional heads, the total salary paid being £21,410.

'The administrative costs of the Department (superannuation, stationery, rents, rates, etc.) amount to £60,000 per annum approximately. Taking the two foregoing items of expenditure, which total £81,410, from the balance £273,400 leaves £191,990 for profit and the staff salaries of a management and planning division.' The total salary cost shown for this Management and Planning Division amounts to £48,585 per annum.

'Saving to Corporation'

Here the report states: 'This sum (£48,585) taken from the amount of £191,990 indicates a profit of £143,405 per annum from the City Architect's department, on a direct fee comparison. This profit represents a saving to the Corporation of over 28 per cent on the professional fees which would be charged if all work were entrusted to private consultants.'

The report goes on to outline in detail the planning of the organisation by divisions. Architects (general and education); building engineers; quantity surveyors; management and planning (the appointment of a Department Manager in control of a Management and Planning Division which shall co-ordinate the entire work of the Department is confirmed); town planning and buildings; and a town planning adviser to the City Architect. This latter post would be a new one, for an experimental period; and an appointment from present staff has been made.

Other appointments recommended (and now confirmed) are: Assistant City Architect (general): Mr. G. Carter; Assistant City Architect (education): Mr. R. E. Shapley; Department Manager: Mr. H. M. Stafford (formerly deputy chief quantity surveyor); Chief Building Engineer: to be advertised; Chief Quantity Surveyor: Mr. T. Kinsella; Chief Building Surveyor: Mr. H. Fellows (as at present).

The organisation of the Department as proposed is shown in the diagram on page 917.

STAFF DEPLOYMENT

Staff envisaged by sections (not including section heads) and calculated at maximum of scale is:

General Buildings Division

			£	£
2	JNC D ...	...	1,975	3,950
2	JNC C ...	...	1,825	3,650
2	JNC B ...	...	1,670	3,340
8	JNC A ...	...	1,565	12,520
10	APT V ...	...	1,480	14,800
12	APT iii/iv	...	1,310	15,720
4	APT iii ...	...	1,140	4,560
8	GD i/ii ...	...	960	7,680
48				£66,220

Special posts (temporary) of senior resident engineer, junior resident engineer and clerks of works are additional on non-fee basis.

Educational Buildings Division

			£	£
2	JNC D ...	...	1,975	3,950
2	JNC C ...	...	1,825	3,650
2	JNC B ...	...	1,670	3,340
8	JNC A ...	...	1,565	12,520
9	APT V ...	...	1,480	13,320
11	APT iii/iv	...	1,310	14,410
4	APT iii ...	...	1,140	4,560
8	GD i/ii ...	...	960	7,680
46				£63,430

Six posts of clerk of works (temporary) and 18 (permanent) are additional on non-fee basis.

Building Engineers' Division

44 staff are envisaged here, at a total of £57,360. Salaries of the principal engineers are Structural (JNC D) £1,975; Electrical (JNC B) £1,670; Heating (JNC B) £1,670.

Quantities Division

This is organised under 5 groups: Major Works (2), Minor Works, Miscellaneous, and Estimates and Contract Settlements.

			£	£
1	JNC D ...	...	1,975	1,975
2	JNC C ...	...	1,825	3,650
2	JNC B ...	...	1,670	3,340
4	JNC A ...	...	1,565	6,260
8	APT v ...	...	1,480	11,840
11	APT iii/iv	...	1,310	14,410
3	APT iii ...	...	1,140	3,420
7	GD i/ii ...	...	960	6,720
38				£51,615

Management & Planning Division

A total staff of 58 is envisaged here, absorbing the existing administrative section with salaries totalling £48,585.

Town Planning & Buildings Division

This is divided into three Groups: Deposited plans; Inspections; Fire Escape Precautions.

			£	£
1	JNC B ...	... ...	1,670	1,670
5	APT iv ...	... ...	1,310	6,550
5	APT iii ...	... ...	1,140	5,700
8	APT ii ...	... ...	960	7,680
2	APT i/ii	... ...	960	1,920
2	GD/APT/i/ii ...	...	960	1,920
3	Misc. iii/APT/i/ii	...	960	2,880
3	Misc. iii	... ...	625	1,875
29				£30,195

Letters to the Editor

Competition from Poland; Optical Delusion in Gt. Queen-street; The New 'Bannie' History

SIR,—The Cyprus Republic have awarded the reconstruction of Famagusta Harbour to a Polish contracting company (name as yet unpublished). This was against strong international competition, including, British, French, German, Dutch, Israeli and Cyprus firms.

The accepted tender is £1,200,000. The original estimate was £2,500,000!

C. DICKIE [AFS, MRSH],
Royal Air Force, Akrotri, Cyprus.

Optical Delusion in Gt. Queen-street?

SIR,—Has something gone wrong with our traditional law of perspective, by which the sides of a straight road seemed to meet on the horizon and presumably those of a high building followed the same course? An examination of some of our modern tall buildings seems to suggest that the opposite is true, and that the top floors are wider than the lower ones. Which is absurd.

The new Laing building in Great Queen-street is a case in point. See it first from the Lincoln's Inn Fields direction, where you may have been parking your car preparatory to lunching. It certainly seems as if the line from the street to the top leans outwards. Next look at it from the opposite side of the street before you go into the Connaught Rooms, and the lines seem to expand, whereas logically they should, of course, diminish. And this before, not after, lunch.

Perhaps some of your more erudite readers will elucidate the mystery. Merely to say it is an optical delusion, which of course it is, is not enough.

SCRUTINEER.

The New 'Bannie' History

SIR,—It is good to see the new edition—even though so large as to be cumbrous to handle—of the late Sir Banister Fletcher's *History of Architecture*, on which one worked for many years. Naturally one approached it with some trepidation lest the existing character should have been lost, but it has not: under Prof. Cordingley's careful labours it (to quote the foreword) 'incorporates much new material . . . , at the same time faithfully preserves the spirit, purpose and form, and in great part the actual language . . .', if anything, it may be too conservative. Most of the beautifully-drawn plates, largely by the late G. G. Woodward, who worked near 'Bannie's' office, have been retained in whole or part. The lettering on the new ones is less distinguished than the old, the 'model sheet' (drawn up by L. J. Fremen Gomme, now of Cambridge, who lettered many sheets) having presumably disappeared; incidentally in this there was a touch of unconscious humour—the 'serifs' or 'ceriphs' (hair-lines at corners of letters) were Biblically disguised as 'seraphs'! W. R. Steel, now of Luton, did some sheets of a slightly rounder and heavier style.

As to the new work, a cursory glance suggests that it is uniformly good; dates of buildings seem to have been corrected (though, e.g., the portico of Pistoia Cathedral is not shown as later than the façade behind). Several problems of terminology have been frankly faced, e.g., 'renaissance' has been retained for the whole period from lack of 'another term' for the phases between the first renascence and baroque. The glossary seems little altered since the writer worked on it, and the index is improved by the addition of distinctive references to illustrations. It is gratifying to find the work ushered on to a new period.

H. V. MOLESWORTH ROBERTS,
Wallington, Surrey.

'You went to the Building Exhibition—then what happened?'

An 'Institution of Chartered Engineers'

Civil Engineer's Proposal

IN HIS presidential address to the Institution of Civil Engineers in London on November 7 SIR GEORGE MCNAUGHTON, CB, BSC, MIMECHE, stated that the recently formed Civil Engineering Research Council had an income of about £40,000 per annum for the next few years, but that the cost of research would necessitate a much larger sum if the organisation was to function. Sir Herbert Manzoni had put the target figure for research at £¼m. per annum if the Council was to cater for the whole field of civil engineering.

In the past civil engineering had suffered through there being no central organisation charged with the duty of initiating and co-ordinating research. A large amount of valuable work had already been done, however, by various universities, Government research organisations, contractors and private industry, but there was still a wide field of basic and applied research open to an organisation with substantial funds.

'Institution of Chartered Engineers'

Speaking of the desirability to amalgamate or affiliate the various chartered bodies of engineers, Sir George McNaughton said, 'A new school of thought is gaining acceptance. It is that the Civil, Mechanical and Electrical Institutions should, if they agree, combine to form one Institution of Chartered Engineers which would be so powerful that the other chartered bodies could not afford to remain outside. Others, whilst accepting the ideal of a one all-purpose Institution, hold that the time is not yet ripe for such a bold and far-reaching step and they propound an overriding high level co-ordinating board which would speak for the three Institutions on all matters of public interest and policy and would achieve appropriate amalgamations and affiliations as may be desirable in their respective spheres.' He thought that there was a substantial body of opinion in the three Councils in favour of this suggestion. 'I am in favour of it,' he continued, 'not as a final solution, but as a means of bringing the Institutions closer together in the hope that it will be possible to unite the three into one body in the future.'

Obituary

Alfred Underhill

The death occurred recently of MR. ALFRED UNDERHILL, FRIBA. He was a partner in the firm of Milne and Underhill, of 305 Salmon-street, London, NW9. At an inquest on Mr. Underhill on November 7 a verdict of suicide was recorded.

R. Parker

MR. ROBERT PARKER, MC, ARIBA, FRICS, QALAS, RCA, of 'Oak Howe,' West Crescent, Windermere, Westmorland, died on November 5. He was elected an associate of the RIBA in 1926 and retired from practice in 1961.

Flats at Hove, Sussex

GOTCH & PARTNERS, architects
L. G. MOUCHEL & PARTNERS, consulting engineers
DROWER & SON, quantity surveyors
NICHOLSON CONSTRUCTION CO. LTD., general contractors

THESE FLATS replace an early Victorian house on a site only 100 yds. or so from the sea wall at Hove.

The plan evolved for a typical floor is based on the use of internally ventilated bathrooms, permitting 6 flats per floor to be obtained. Penthouse flats are the largest units.

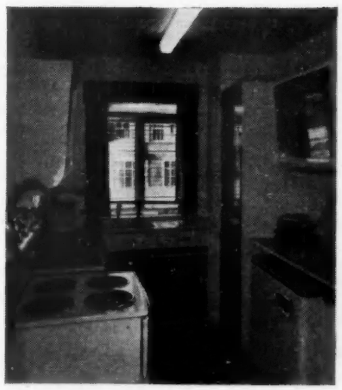
Construction is of r.c. framework on pad foundations, with hollow tile floors. Balconies are of reinforced concrete with a white Cementone finish. Walls are L.B.C. dapple grey facings and inner leaf of Lignacite block. Windows are storm-proof timber casements. Flooring is wood block, thermoplastic tile and screeding for close carpeting.

Public ways, bathrooms and w.c.s are mechanically ventilated. Central heating is by an oil-fired boiler. A New Era internal telephone system links all flats with the porter's desk and main entrance, permitting remote control operation of the entrance doors by each resident.

sub-contractors & suppliers :

R.c. framework: Formcrete Ltd.; *demolition:* S. M. Tidy (Public Works) Ltd.; *asphalt roofing, paving & tanking:* Limmer & Trinidad Lake Asphalte Co.; *lift engineers:* Express Lift Co. Ltd.; *scaffolding:* Westminster Scaffolding Ltd.; *flues:* True-Flue Ltd.; *heating & plumbing engineers:* Heating & Ventilation (Southern) Ltd.; *electricians:* Dennis Hudson Ltd.; *lightning conductors:* R. C. Cutting & Co. Ltd.; *ironmongery & sanitary equipment:* W. N. Froy & Sons; *glazing:* John Hall & Sons Ltd.; *paving, plastering & tiling:* Worthing Plastering Co. Ltd.; *balustrade & balconies:* C. E. Dansie; *builders merchants:* Hall & Co. Ltd.; *bricks:* J. & W. Henderson Ltd.; *reinforcement:* McCall & Co. (Sheffield) Ltd.; *joinery:* Beves & Co. (Joinery) Ltd.; White & Co. (Brighton) Ltd.; *kitchen fitments:* Louis G. Ford Ltd.

Facing page, principal elevation from south-west. Right, kitchen with compact arrangement of fittings, and main living room with double doors opening on to the balcony



Motorways

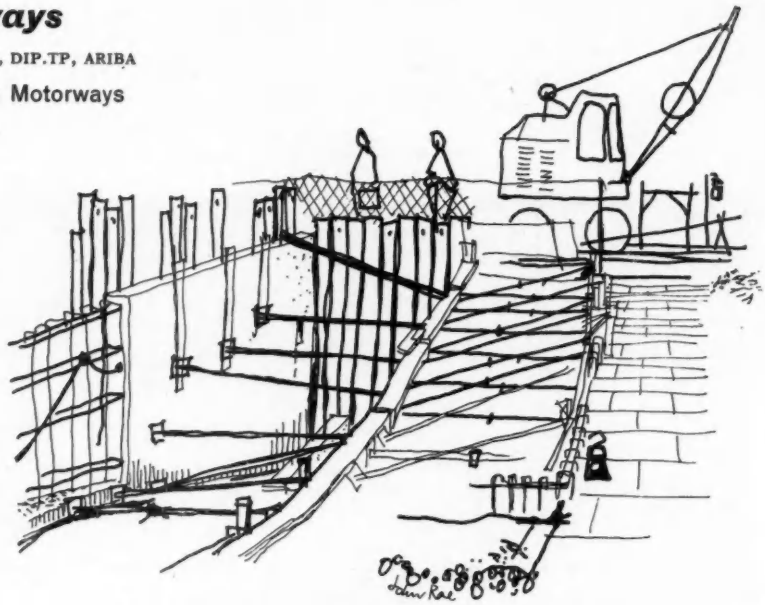
BY JOHN RAE, DIP.ARCH, DIP.TP, ARIBA

3. Details of Urban Motorways

IN THE FIRST two articles of this series we have seen that, first, there are two types of road, the service road and the through road, and second, that these divisions should be reflected by the town plan. In the second of these articles we saw how London could be divided into zones of land use, each with its own local road system, by the introduction of motorways along the edges of these zones. It is the purpose of this present article to consider some of the details of such urban motorways, and to show by examples both good and bad methods of handling them. In order to do this in such a confined space it will be necessary to allow more space for illustrations than the text might appear to warrant.

It is easy to criticise. However, as criticism is the result of positive thinking upon a subject we may be allowed to make some critical comments by way of introduction upon the types of motorway 'improvements' now being undertaken in and around London. The first and most basic criticism of the present road works is that they are related to existing roads and are not creating new ones. In other words the mixture of through traffic and local traffic is to remain upon these new road systems, and up-graded local roads will attract both through traffic and local traffic to them. Thus it will be seen that no very great change is being made in the existing road patterns, and although certain junctions are being stopped up in all the up-graded roads there is still a great quantity of intersections and junctions, many of which require traffic control lights and so deny the true meaning of the fast through road.

The second grave consideration and criticism is that the present road system is a terminal system, that is to say the roads themselves lead to a place and then stop or else turn a corner and then proceed to some other place. We have already seen that this is not the way to treat fast through traffic, and also that the centre of the city should properly be treated as a zone into which no fast through traffic can penetrate. In London we have in the Cromwell-road extension an example of this type of local road upgrading.

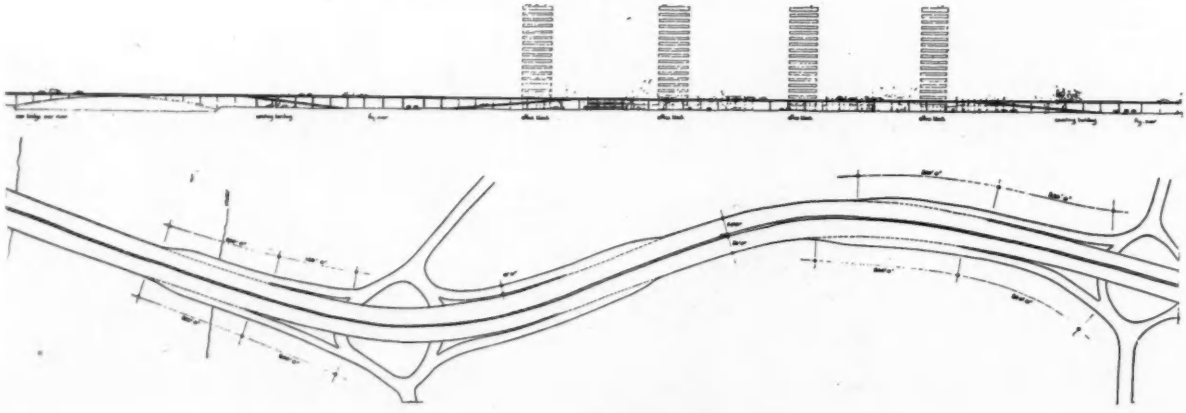


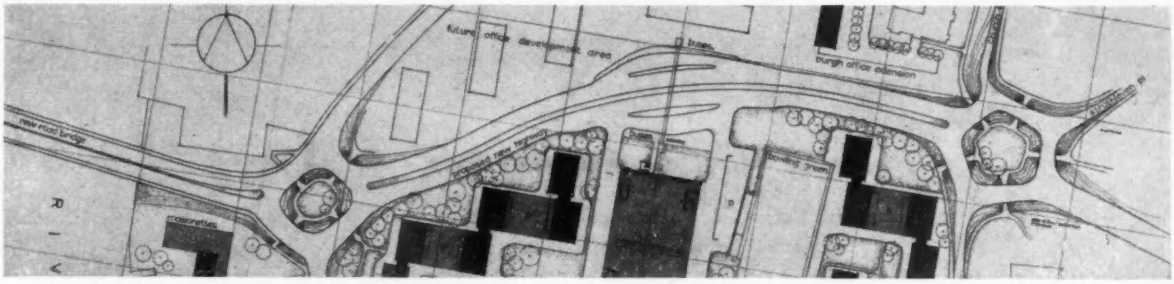
Work in progress on a pedestrian underpass in Park-lane

The Cromwell-road has been developed towards the west as a fast in-coming road, where it overrides the Chiswick Flyover linking it to the Great West Road. Further into the town we find that it bisects an area of residential use that should not be bisected by a fast motor road. This road then continues eastwards from Kensington and into the congested shopping areas of Knightsbridge. Here at Hyde Park Corner are major road works designed to bring this stream of traffic right into the centre of the West End and down Piccadilly as down a great conduit channel. Where will it go? Already there is a great deal of soul-searching and discussion about the fate of Piccadilly Circus itself.

The president of the Royal Institute of British Architects, Sir William Holford, has designed, with the backing of the LCC, a new layout for this circus. It will be capable, he assures us, of dealing with a slightly increased traffic density. However, it cannot possibly deal satisfactorily with greatly increased traffic density, such as we shall have when the Hyde Park underpass has been completed. It seems to me to be unfair to expect any person to prepare a solution to the centre of the town when the threat of a vast traffic influx is held over his head. I can picture the president sitting at his board and saying 'Behind my back I hear Time's winged chariot hurrying near.' And when it has arrived, he must ask himself again where is it to go? Down the Haymarket into Trafalgar-square, and down the

A high level road brings the road through the town centre without forming any barrier to local traffic and pedestrians. A good view of the town is obtained from this road, and the ground beneath it can be used for parking, etc. It is argued that an elevated road forms a visual barrier that cannot be accepted in a town, but in fact it provides less of a barrier, in every sense, than any other type of road except a sunken road





A ground level highway passing close to a town shopping centre (to the south), with an office zone to the north. Roundabouts give access to the town, and the whole of the road itself, with its continuous central reservation, is treated as a roundabout between these two points. This design is wasteful of important ground areas and, although it is planned for continuous flow of traffic without any control lights, is likely to become congested with the build-up of traffic volume. A ground level road of this sort will always be a barrier to local traffic and pedestrians, especially if the greatest volume of traffic is on the East-West route

Strand, until the whole of the West End of London and the City also will become a modern Brooklands as dangerous to the pedestrian as it is exciting to the motorist.

Let us take a closer look at the disruptions that take place within the centre of a town, when all these cars come onto the existing road patterns. London is a good example to look at now because the local roads are extremely congested and temporary measures, we can call them nothing else, have already been taken to deal with the situation. We find that three things have happened. First of all there is inadequate parking space for all the vehicles in the centre. The streets become congested with stationary vehicles sometimes parked on both sides and sometimes in the centre as well. This aggravates all other problems.

Second, we discover that one-way road systems are devised so that cars can flow more freely through the city. Immediately however the local road system assumes the character of a through road and loses its most valuable contribution, that of access to buildings. Nowadays it is necessary to drive several miles out of one's way in London in order to get into a one-way street at the right end and to progress down it until one arrives at the place to which one wants to go. There of course we find that there is no room to park.

The third result is that the pedestrian is denied the use of the road, and is barely welcome on the sidewalk. He is rightly not wanted on a sidewalk, if this will involve his constant journeying from one side of the road to the other, unless the road in question is a very minor one indeed carrying but little traffic. However, we have seen that the roads of London are carrying more and more traffic, mostly in one direction only, and in order to preserve the life of the pedestrian an innumerable number of underpasses are being constructed. Thus the pedestrian scuttles rabbit-like from one side of the street to the other to walk a few paces down the street to the shop or building that he wishes to visit. For him the town is no longer a place of communal life, of intermixing and dispersing, of walking and talking, rather it has become a labyrinth down whose ways he is forced to go, willynilly, by signs, traffic controls and exhortations.

Recent Suggestions

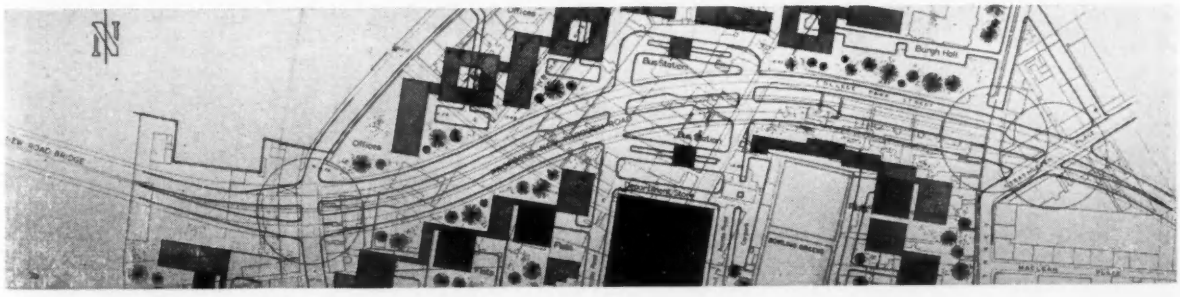
There have been in recent years two suggestions for dealing with this type of situation; both of them doctrinaire, both of them very workable, but neither of them within the realm of present day economy. The first, published some years ago in the 'Evening News,' shows a fast motorway crossing London from west to east along the north bank of the Thames. This is a pure motorway, providing a much needed west-east link, and unrelated to the local street pattern, except at certain junctions. Where this road encountered obstacles in its path of some significance, such as the terrace of the House of Commons, it dived underground and avoided it.

The second suggestion, published more recently, shows a first floor pedestrian deck bridging the whole of Oxford-street, giving vertical separation between the pedestrian and the vehicular traffic, and first floor access to all shops and stores. This is the most recent proposal in a series of proposals designed to turn the centre of London into a two-level city.

Both these suggestions, the motorway, and the pedestrian way, point the way in which the towns of the future must develop if they are to survive and to fulfil their proper functions. The series of illustrations shown here are an attempt at analysing the effect upon the city of motorways and pedestrians segregation.

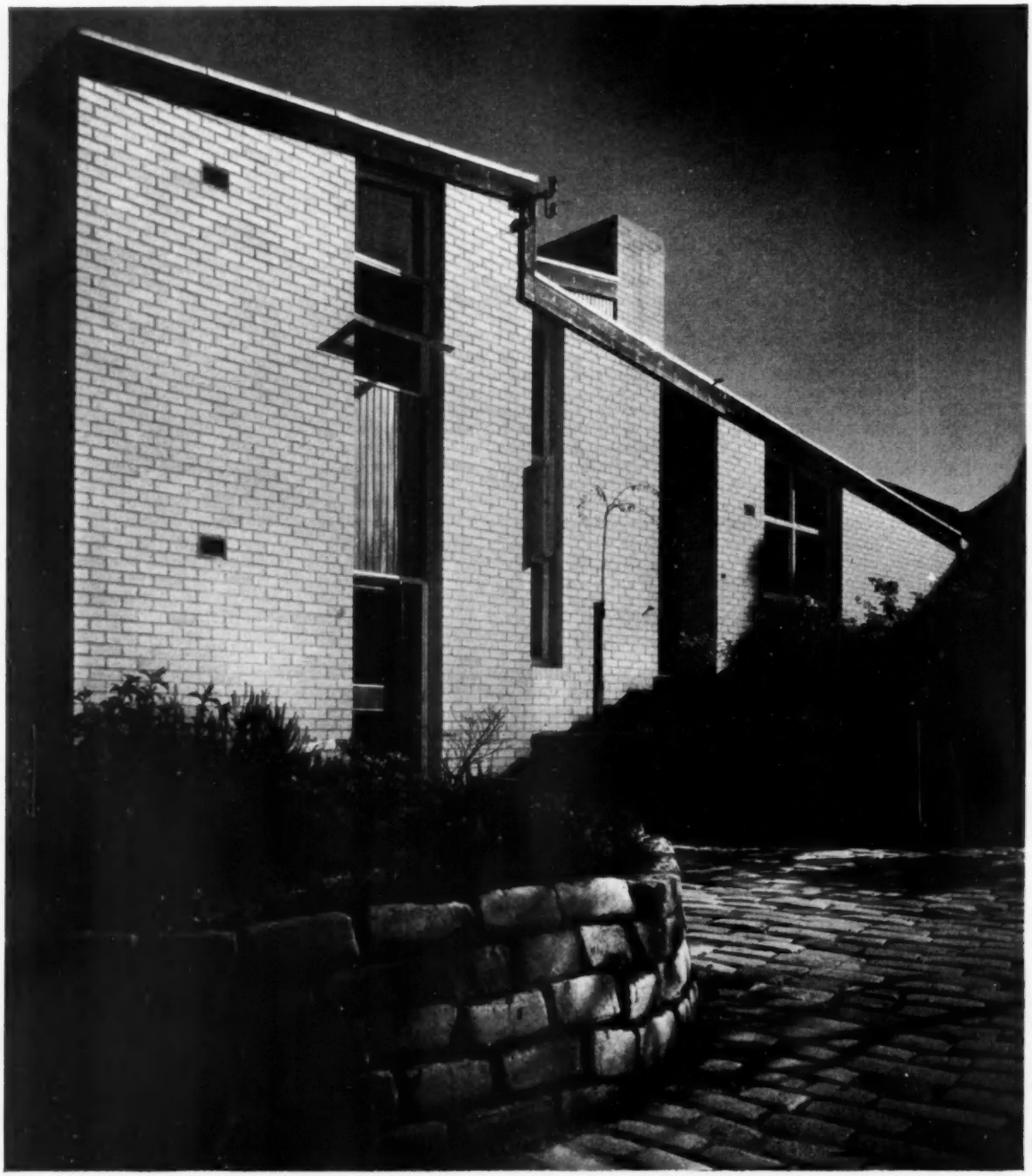
This article is the third in a series of four in which John Rae traces the history of the motorway and the various forms of public transport, emphasising some glaring illogicalities in planning. In the final article, 'The National Pattern,' Mr. Rae will consider motorways against the background of the nation-wide traffic pattern. He examines the various forms of transport, analyses them, and draws conclusions that may point to a future pattern on which plans may be based.

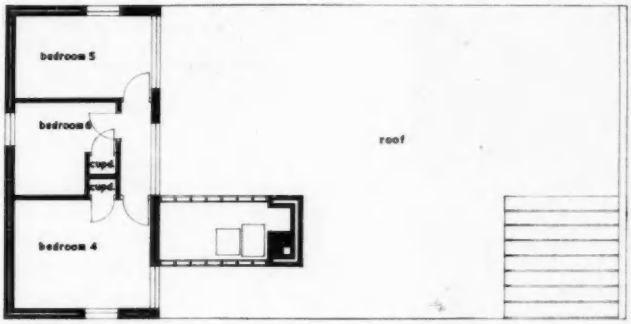
A ground level road with traffic control points along its length. These are linked to allow a free East-West flow but also provide safe and uncongested flow across this route. Adequate waiting bays are provided for turning traffic. The central reservation is not continuous, and the main access to the town centre is now from the middle point on the new road. This will free the local roads from pressure, and allow visiting traffic to come quickly to the actual centre, where car parking within the buildings themselves can be arranged



Private House, Edinburgh

MICHAEL LAIRD, ARIBA, ARIAS, architect
J. N. UNDERWOOD & SONS, quantity surveyors
WILLIAM ARNOTT McLEOD & CO. LTD., general contractors





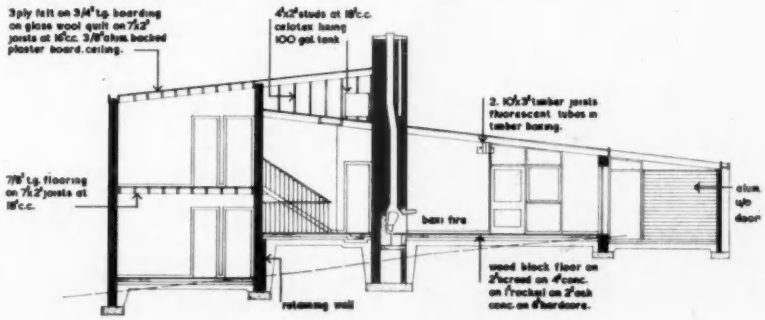
FIRST FLOOR

west elevation from high ground

GROUND FLOOR, Scale : 1 in. =16 ft.

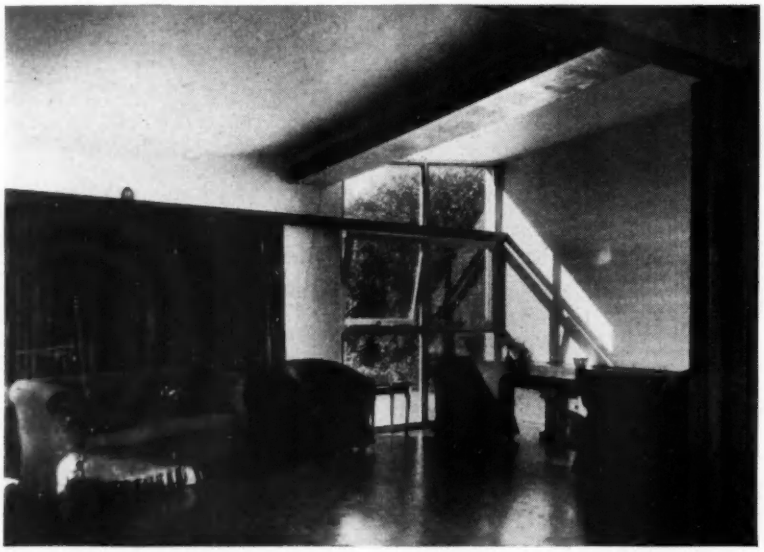
west elevation from lower part of site

SECTION, Scale : 1 in. = 16 ft.


3ply felt on 3/4" t.g. boarding on glass wool quilt on 7"x2" joists at 16"c.c. 3/8" plas. backed plaster board. ceiling.
4"x2" studs at 18"c.c. celotex lining 100 gal. tank
2. 10"x2" timber joists fluorescent tubes in timber boxing.
7/8" t.g. flooring on 7"x2" joists at 18"c.c.
alum. up door
bean fire
wood block floor on 2" screed on 4" conc. on 1" rockwl on 2" cork conc. on 6" hardcore.
retaining wall

THE CLIENT required a six-bedroom house with the largest possible living space for a cost not exceeding £7,000. The design solution was influenced by the narrow shape of the site. It is bounded by high trees on the north, closely adjacent houses on the east, and the adjoining house on the south is built right up to the boundary wall. The only approach is from the west where the frontage is limited to 70 ft., and a

Private House, Edinburgh



Left, open well staircase linking the mezzanine living area with two floors of bedrooms. Below left, living room from dining area

ground slope of 1 in 10 continues over the full 230 ft. depth of site.

The long axis of the house runs almost north to south thereby securing east-west sunlight and good views west down the plot. Existing ground levels are also exploited by doubling-up the bedrooms at the lower site level, and setting the living areas at mezzanine higher up the slope. Maximum economy is achieved by integrating the plan with structural requirements, adopting a window pattern with economical double glazing sizes, and building wardrobe and storage space into the mezzanine roof area.

Walls are 11 in. cavity with sand-lime facing bricks. Flooring is wood block, lino tiles, softwood t. and g. boarding and screeding to take close carpeting. Exterior panels of t. and g. vertical boarding are mounted on softwood framing. Roofing is ply-felt with softwood fascias and aluminium trim. The staircase has a hardwood handrail supported on ½ in. dia. mild steel balusters at 8 in. centres. The living room has a Baxi fire with a copper back-boiler.

Total floor area: 2,000 sq. ft.; tender price £6,196 3s. 6d; cost per sq. ft. 63s. 7d., excluding landscaping and external works.

sub-contractors & suppliers:

Joinery: Peter Nimmo & Sons Ltd.; *glazing:* Cunningham, Dickson & Walker; *felt roofing:* Wm. Briggs & Sons Ltd.; *plastering:* Peter Kelly & Sons Ltd.; *painting:* W. C. Simpson & Co. Ltd.; *electrical:* Eastern Electric Service.

News of the Week

Government Help for Exporters

THE MINISTRY OF WORKS is sponsoring a conference on the export of building materials and components on Tuesday, November 28 from 11 a.m. to 1 p.m., during the Building Exhibition at Olympia. The conference will be attended by the Minister of Works, Lord John Hope, MP, who will also act as chairman. He will speak of the Ministry's special responsibilities to the building materials industry. The Minister of State, Board of Trade, Sir Keith Joseph, MP, will explain the assistance the Government can give to exporters.

Other speakers will be drawn from manufacturers and others, who will give examples of their own experiences. After the official speakers it is proposed to have an informal discussion, during which speakers will answer questions on the floor. Admission tickets can be obtained from the Conference Secretary, Room 22, The Building Exhibition, Olympia, London, W14 (tel.: Shepherds Bush 4346).

Edinburgh Department of Architecture

THE RIBA COUNCIL, at its meeting on November 7, approved the recommendation of the Board of Architectural Education that the course at the Department of Architecture, University of Edinburgh, leading to the BA Degree in Architecture with Honours be exempted from the RIBA Final Examination, without Part 111, the Examination in Professional Practice and Practical Experience, under the usual conditions, and that this recognition be made retrospective to cover the cycle of years just completed.

St. Andrews University Rectorship

SIR BASIL SPENCE was defeated in the election for the Rectorship of St. Andrews University, the successful candidate being Sir Charles Snow. Other unsuccessful candidates were the Very Rev. George Macleod, Lord Hughes and Sir Julian Huxley.

Building Under Review

'A CRITICAL REVIEW OF THE BUILDING INDUSTRY': this is the title of a talk which will be given by Mr. Ian M. Leslie, OBE, Hon. ARIBA, Hon. FIOB (Editor of 'The Builder'), at a joint meeting of Architects, Builders and Quantity Surveyors which will be held in the Henry Jarvis Hall of the RIBA, 66 Portland-place, W1, on Thursday, November 23, at 6.15 p.m. The meeting has been organised by the Junior Quantity Surveyors' Committee of the RICS under the auspices of the Junior Liaison Committee, and is the first of a series of 'follow-up' meetings to the joint conference on 'Building in Twenty Years' Time' which was held at Cambridge in September. Mr. Leslie is expected to cast a critical eye over the whole industry as it operates to-day, pointing out its many weaknesses and suggesting ways in which it can be improved in order to provide the service which is expected of it in the modern world. No tickets are required.

Common Market Preparation

IT WAS ANNOUNCED on October 26 by Colonel E. R. Mayer, President of the National Union of Manufacturers, that a recommendation was to be put at an extraordinary general meeting on November 15 to change the name of the organisation to the National Association of British Manufacturers. This change has been proposed in the belief that Britain will join the Common Market in the near future and that, in this event, the organisation should have a name free of ambiguity. Announcing the change the president said that trading was 'the finest lubricant for world affairs,' and that a 'new race of merchant adventurers' was needed to recapture the lead in trading which Britain had held in the past. It was necessary for manufacturers to begin their planning immediately and it was the organisation's intention to assist in this as it had during its 50 years' existence.

CPRE Annual Report

SCORES OF THREATS to the beauty of the countryside, on which the council have taken action, are referred to in the Annual Report of the CPRE for 1960-61. In the introduction to this the council vigorously denies that it is out to preserve England as a 'museum piece.' 'Development of the right kind and in the right place,' it asserts, 'has always been encouraged by the CPRE, and it need not necessarily lead to disfigurement. Good architcture and other sound professional advice is available and should be used in all circumstances.' The Council is in urgent need of more members if it is to cope adequately with the heavily increasing demands upon it. The report is issued from 4 Hobart-place, London, SW1.

Commission for the New Towns

MR. B. J. COLLINS, CBE, County Planning Officer of Middlesex, has been appointed Secretary to the Commission for the New Towns. Mr. E. E. H. Cage, Chief Executive of Crawley Development Corporation, has been appointed Finance Officer to the Commission.

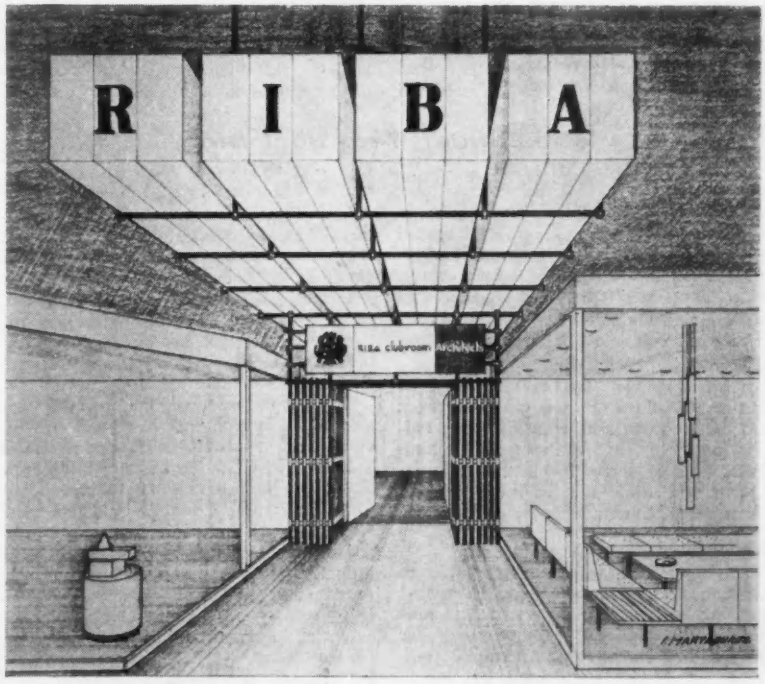
RICS and RIBA Soccer

THE RICS SOCCER TEAM suffered their second defeat of the season when they lost on November 8 at Chigwell to the RIBA. The Surveyors, starting with ten men, were soon two goals down. After the arrival of their eleventh man, the Surveyors settled down and were only 3-2 down at half-time. The Architects, however, confirmed their superiority in the second half and won by the convincing margin of 7-2. A return match has been arranged for March 21 at the Edmonton CC (Norsemen) ground.

Nash Work at Chichester

A FORMER MAYOR of Chichester, Sussex, Ald. Russell Purchase, has proved through documents that have recently come to

RIBA CLUBROOM AT THE BUILDING EXHIBITION.—*An artist's impression of the Royal Institute of British Architects' Club Room, designed for the Building Exhibition by Mr. Roger Worboys, MA, ARIBA. The room is 68 ft. by 28 ft. and a temporary framework of scaffolding has been built up to form a basis for new walls and a suspended ceiling. A mosaic panel by Elder Reed has been placed in front of the tea counter and decorative stoneware panels by Ceramic Consultants Ltd. add colour to the back walls and structural columns. Help was freely given by furniture and building material manufacturers*



light that the Butter Market, in Chichester, was the work of the 18th-century architect, John Nash. Mr. Purchase has been trying to find proof since 1954, when he helped to fight a move by the City Council to pull down the Butter Market—a fight that was eventually successful by the narrow margin of two votes.

Sculpture Exhibition at Olympia

BY COURTESY of the promoters, the LCC will remount on their stand (No. 1035, first floor, Empire Hall) at the Building Exhibition at Olympia, the exhibition of sculptures and works of art, which was shown at the Royal Festival Hall recently.

Chamberlain-gardens, Birmingham

CONSULTANTS and builders for Chamberlain-gardens housing scheme, Birmingham (illustrated in our issue of November 3), are: Quantity surveyors, J. Kirkham Dale & Son; structural consultants, L. G. Mouchel & Partners; and builder, C. Bryant & Son Ltd. The City Architect is Mr. A. G. Sheppard Fidler and the architect in charge of the scheme Mr. B. L. Leicester.

Leadwork Competition, 1961

THE presentation of the trophy and prizes to the national winners—Wolverhampton and Staffordshire College of Technology—of the leadwork competition, organised by the Lead Development Association, is to take place at the Building Exhibition on November 22 at 11.30 a.m. The presentations will be made by Sir William Holford, PRIBA, in the RIBA Clubroom.

New MoW Regional Director

IT HAS BEEN announced by the Ministry of Works that Mr. W. T. Lewis, CBE, Regional Director of the South Western Region for the past five years, retired on October 31. His successor at the regional office (Burghill-road, Westbury-on-Trym, Bristol) is Mr. A. W. J. Scoble.

Repairs to Church Stonework

STONE PINNACLES that had deteriorated beyond repair at Holy Trinity Church, Southport, Lancs., have been replaced by pinnacles moulded in fibreglass, which were ragbolted to the existing masonry.

Appointments and Retirements

MR. A. B. MASKILL, AA Dipl (Sheffield), ARIBA, appointed surveyor to the Diocese of Southwell, in succession to Mr. N. M. Lane, who has retired after holding the post for more than 25 years.

MR. JOHN WORTHINGTON, MIMUN.E, MTPI, chief planning engineer to Middlesbrough CBC since 1947, has retired.

MR. W. J. N. BRYCE, BSC, MICE, MIMUN.E, county surveyor to the East Riding of Yorkshire, is to retire next March after 31 years with the council. Applications for the post are to be invited.

Professional Announcements

MR. JOHN RAE, DIP ARCH, DIP TP, ARIBA, has established his head office at 22 Chesterford-gardens, Hampstead, NW3 (temporary telephone number: Hampstead 7634). He will maintain a subsidiary office at 40 Baker-street, W1 (tel.: Welbeck 5310).

MESSRS. CYRIL SWEETT & PARTNERS refer to their recent announcement (The Builder, November 3) concerning changes in the partnership and wish to add that MR. WILLIAM STANLEY KIRKBY, FRICS, decided to retire from the firm after nine years as a partner.

A Hundred Years Ago

From 'The Builder' of Nov. 16, 1861

SAFETY SIGNALS FOR RAILWAY CARRIAGES.—Mr. Bazin, of Angers, has invented an apparatus, according to *Galignani*, which has been tried on the Orleans line. A cord is placed within reach of the traveller, by pulling which a small ventilator is set free, and begins to rotate in virtue of the current of the train, whereby it causes a bell to ring, which gives the alarm. At the same time a coloured disc is pushed out, which shows in what carriage or compartment the alarm has been given. Once in motion, the apparatus cannot be stopped, except by the guard. Thus a traveller who might be induced to play a practical joke would be discovered by his own act. The experiment is said to have been a successful one.

'The Builder' Year Book Diary

A New Publication

TECHNICAL year books vary considerably in size and purpose, ranging from the ponderous-encyclopaedic to the handy-selective. 'The Builder' Year Book Diary, a new production, just issued (4 Catherine-street, Aldwych, London, WC2, price 10s.) comes in the latter category.

In addition to 52 pages of diary space for 1962, as well as several pages for names and addresses, telephone numbers and memoranda, and calendars for 1961, 1962 and 1963, it contains nearly a hundred pages of useful technical and other information under the headings, General Information, General Data, and Directory.

Sectionalised Headings

The first section includes a guide to building and planning controls, model building by-laws, Holidays with Pay procedure, the National Joint Council for the Building Industry, the National Joint Apprenticeship Scheme, wage rates, architects' fees and conditions of engagement, surveyors' professional charges, civil engineering contractors' daywork schedules for plant and equipment, central heating and hot water supply, concrete materials and mixes, electrical installations, lighting and lamps, sanitary equipment for factories, and plywood.

The second section includes the unit weights of building materials and conversion and other useful tables, and the third a directory of London District Surveyors, of the main and regional offices of the Coal Utilisation Council, Gas and Electricity Boards, and of the professional and allied organisations in the UK building industry. Well bound and attractively produced, the Year Book should appeal to all who need a diary combined with essential information in handy and convenient form.

Coming Events

A DIARY OF EVENTS for the Building Exhibition is printed on page 943.

FRIDAY, NOVEMBER 17

INSTITUTE OF MUNICIPAL BUILDING MANAGEMENT.—Annual dinner and dance. Cumberland Hotel, Marble Arch, W1. 6.30 p.m.

SATURDAY, NOVEMBER 18

SOCIETY OF PORTRAIT SCULPTORS.—Ninth annual exhibition. 26 Conduit-st., W1. Daily: 10 a.m. to 4.30 p.m. Saturdays: 10 to 1 p.m. (until Dec. 9).

MONDAY, NOVEMBER 20

SOCIETY OF INDIVIDUAL FREEDOM.—Luncheon. 'Some Aspects of Planning from Individual's Point of View,' by Mr. F. V. Corfield. House of Commons. 1 p.m.

INSTITUTION OF ELECTRICAL ENGINEERS.—Discussion: 'Electrical Accidents and their Causes, including the Legal Aspects.' Savoy-pl., WC2. 5.30 p.m.

TUESDAY, NOVEMBER 21

HOUSING CENTRE TRUST.—'Electrical Heating for Houses and Flats,' by Mr. M. Bolser. 13 Suffolk-st., SW1. 6 p.m.

NATIONAL FEDERATION OF ROOFING CONTRACTORS.—Annual banquet. Grosvenor House, Park-la., W1. 7.15 p.m.

RICS (QUANTITY SURVEYORS' COMMITTEE).—Annual dinner. Grosvenor House, Park-la., W1. 7.30 p.m.

WEDNESDAY, NOVEMBER 22

LEAD DEVELOPMENT ASSOCIATION.—Presentation of trophy and prizes for leadwork competition, by Sir Wm. Holford. RIBA Clubroom, Building Exhibition, Olympia. 11.30 a.m.

ROYAL SOCIETY OF ARTS.—'Landscape and Civilisation,' by Miss S. Crowe. John Adam-st., WC2. 2.30 p.m.

RIBA.—'Modern Architecture Abroad,' by Mr. R. Furneaux Jordan. 66 Portland-pl., W1. 6 p.m.

VICTORIA AND ALBERT MUSEUM.—'The Meaning of Indian Sculpture,' by Mr. W. G. Archer. London, SW7. 6.15 p.m.

INSTITUTE OF BUILDERS' DISCUSSION CLUB (BIRMINGHAM CENTRE). — Annual meeting. Grand Hotel, Birmingham. 7 p.m.

THURSDAY, NOVEMBER 23

HULL UNIVERSITY. — 'Civic Planning Aspects,' by Mr. J. L. Womersley (one of six weekly lectures on 'Towards New City Centres'). The University, Room A1.

THE MODULAR SOCIETY.—Annual luncheon presided over by Lord Bossom. 4 Whitehall Court, SW1. 1 p.m.

INSTITUTE OF BANKERS.—'Modern Office Building,' by Sir William Holford. Institute library, London. 5.30 p.m.

RCA (WEST OF ENGLAND BRANCH).—'Concrete from the Rough Board Shutter,' by Mr. A. J. Gordon. Bristol University. 6 p.m.

VICTORIA AND ALBERT MUSEUM.—Lecture: 'Modern Finnish Design,' by Mr. H. O. Gummerus. London, SW7. 6.15 p.m.

INSTITUTE OF BUILDERS (LONDON BRANCH).—'Estimating,' by Mr. W. Tomkins. Bedford Corner Hotel, W. 7 p.m.

FRIDAY, NOVEMBER 24

FACULTY OF ARCHITECTS AND SURVEYORS.—Annual meeting. 68 Gloucester-pl., W1. 11.30 a.m. (followed by annual dinner and ball at May Fair Hotel, W1, at 6.45 p.m.).

LONDON SOCIETY.—Lecture by Mr. Dykes Bower. RSA, John Adam-st., WC2. 5.30 p.m.

Competition News

Ideas for Urbanisation in Spain

AN INTERNATIONAL COMPETITION has been announced for ideas for the urbanisation of the Valley of Asua, Bilbao, Spain. The competition has been approved by the International Union of Architects and application for entry may be made until December 1. Prizes of 1m. pesetas (£5,882) and ½m. pesetas (£2,941) will be awarded for entries placed first and second respectively. Application forms can be obtained from the Concurso Internacional del Valle de Asua, Ayuntamiento de Bilbao, Bilbao, Spain.

More Everyday Things

BY ARTHUR W. KENYON, CBE, FRIBA

68. The Family Business

FROM TIME TO TIME I turn from the modern London building scene, with its mammoth works and vast organisations displaying names that are household words, to think and write of the small family building firms with whom I worked in my youth. I know that there are still many of these firms up and down the country, but in London we tend to think in terms of the names we see on the tower cranes; whilst the army of building workers who people the site have become known to us as man-power rather than individuals. I have said it before, and I am sure I shall say it again: there was a day when all building was done in family businesses run by bosses who knew all their men by their Christian names; who had watched them grow up from apprentice-sons of master tradesmen to become master tradesmen themselves; and who had learned their own trade at the hands of their fathers' employees. Retrograde thinking, perhaps; sentimental, no doubt; but not without point nevertheless.

I like to think that some of these virtues which we are all ready to extol in former methods of work can be translated into modern systems and organisation, if we can but see the way. I have been greatly encouraged in this thinking by a recent experience. A small and difficult contract, complicated from the start by its circumstances, had to be completed within a specified period with a dead-line which had to be kept. The contract, though small, had expensive work in it, calling for skilled craftsmanship and careful supervision. The work was placed with one of the large building firms, who have a special department for contracts under £100,000. In this way they are able to keep their own 'family' of workpeople together for jobs such as this, and I found with delight that I

encountered those same men on the job (or so it seemed) whom I knew long years ago—men who took a pride in their work and were pleased to talk about it; who knew what it was all about and whom they were working for. In spite of all the vicissitudes, the job was completed on time.

On larger jobs, this kind of intimate working relationship is not possible. Instead of the interested workman, we have an imported 'labour force' who do what is required of them without any affection for what they are doing or any sense of being related to it. But in the job I speak of, the men knew very well what they were doing and the date they were working to, and the quality of craftsmanship that was required.

The point I want to make is that here at least was an example of how one of the big firms had found a way of perpetuating the spirit of the family building tradition. I would like to plead that in the new courses of study being devised for the building industry, careful note should be taken of the best in our out-of-date methods before they are relegated to antiquity. I hope there will be a small place in the curriculum of our new race of site supervisors and foremen for a study of the methods of the small family business. With all this and Science too they should be a new race indeed.

Institute of Builders

Midlands Branch's First Annual Dinner

THE first annual dinner of the Midlands Branch of the Institute of Builders was held in Birmingham on November 7, with Mr. Frank Russon in the chair. The toast of the 'The Institute' was proposed by MR. NEVILLE BORG, MICE, and responded to by the President of the Institute, MR. GOWING MIDDLETON, FIOB. In the unavoidable absence due to illness of Mr. T. V. Prosser, chairman of the North West Branch, the toast of 'the Midlands Branch' was proposed by MR. D. A. NEALE, Secretary of the Institute, who mentioned that the club was responsible for arousing much interest in the Institute in the Midlands in the previous fourteen years. He mentioned that the Institute planned to set up 23 branches, and said it was thought that the Institute could not sell its ideals from London alone. He then wished all success, first to the Midlands Branch, and then to the other branches as they were formed.

In suitably acknowledging that toast, MR. RUSSON also thanked the President for his attendance that evening, and for presenting the new Insignia and Badge of Office to the Midlands Branch, it being the first to be formed since the general de-centralisation.

Mr. Russon then proposed the toast of the guests, among whom were the Deputy Mayor Alderman D. Johnstone, Mr. A. Gardner, FRIBA, President of the Birmingham & Five Counties Architectural Association, Mr. Maxwell Harrison, FRICS, Mr. P. D. Bowen, FIOB, President of the Birmingham Association of Building Trades Employers, Mr. William Leake, FIOB, President of the Midlands Federation of the Building Trades Employers and several members of Technical Colleges in the area. MR. H. W. MAXWELL HARRISON responded to the toast of 'The visitors,' and said that he was very pleased to hear that one of the prime interests of the Institute was to promote education within the industry, which was apparently having very satisfactory results already in the Midlands.

Photo: 'The Birmingham Post'

Mr. Gowing Middleton, PIoB (left) investing Mr. Frank Russon, Chairman Midlands Branch, with the collarette during the Institute's dinner at the Grand Hotel, Birmingham

W. Riding Planning Appointment

MR. A. L. PARKIN, deputy area planning officer to the West Riding of Yorkshire, has been appointed the first planning officer to Chichester Rural Council.

Ceylon Institute of Builders

Application for Affiliation with IOB

THE PRESIDENT of the Ceylon Institute of Builders, Mr. W. A. D. Ramanayake, attended a recent meeting of the Institute of Builders' Council in London to present personally an application from the Ceylon Institute for affiliation with the Institute of Builders, Great Britain.

The Ceylon Institute was founded in 1956, and is the only organisation of builders in Ceylon, there being no separate employers' federation. Representatives of the leading building firms in Ceylon are in membership of the Institute which has now reached a stage of development which the Institute feels would be further enhanced by affiliation with the Institute of Builders in Great Britain.

For constitutional reasons, affiliation is not yet possible, but as an alternative interim agreement, the Ceylon Institute has been authorised to announce that they are operating in co-operation with the Institute of Builders in Great Britain.

A Lincoln Retirement

MR. A. ADLINGTON, city engineer and surveyor at Lincoln since 1937, retired on November 15.

Computers and Bills of Quantities

A Paper to the Royal Institution of Chartered Surveyors

A PAPER on 'Computers and their Application to the Production of Bills of Quantities' was given by MR. D. A. SMART, BSC(ECON), at a meeting of the Royal Institution of Chartered Surveyors, held at 12 Great George-street, SW1, on October 18. The speaker said:

As far as the general public is concerned computers and their uses are still shrouded in a world of mystery. This is most unfortunate and completely unnecessary.

To understand how a computer works naturally requires an electronic engineering background, but the uses and potential uses of a computer can be understood by anyone with a little common sense.

A computer can be looked upon as a very large accounting machine, with a large number of registers (called 'words') which can be used to accumulate numbers or to store instructions or other alpha-numeric information. In addition to these storage facilities it contains an arithmetic unit which is capable of addition, subtraction, multiplication and division. The computer can also be instructed to take logical decisions. For instance it can be asked to look at a number in one of its registers and if that number is negative to do one thing, and if the number is positive, it can be made to do something else.

These instructions can be written in two ways—either in machine code language, or in autocode language. In the former case certain numbers and symbols are punched on to paper tape and fed to the computer. These numbers define which function has to be obeyed by the machine.

For example: 30 101:04 102
20 103:

This set of orders means pick up the contents of register (word) number 101, add the contents of 102 to this and store the addition in register (word) number 103.

In the case of autocode language the instructions are written in pseudo mathematical terms.

For example: READ A
READ B
C=A+B
PRINT C

This means read a number from the paper tape reader into the computer, allocate a register and call it 'A,' do the same with 'B,' add 'A' and 'B' together and store it in a register called 'C' and print this answer.

Obviously this latter method of programming in autocode is easier and quicker than the machine code method. It is, in fact, very speedily learnt.

However, using either method the instructions are transferred on to punched paper tape, read into the computer and preserved in the computer store. Subsequently these store locations are set one at a time into the order register of the machine, and it is from this position that the instructions are actually obeyed.

Brief Description of the Problem and the Proposed Method

The computer is required to produce bills of quantities using the dimensions from the taking-off sheets, and a library list of the standard descriptions and preambles.

The computer method involves first building up the standard library; these details are punched on to paper tape and written on to a magnetic tape—which constitutes a part of the computer store. It is estimated that one 3,600-foot reel of tape would hold the complete library—i.e., allowing for 50,000 preambles, preliminaries and descriptions. The computer could read this completely in under 5 minutes!

Once the standard library is constructed, the next stage is to punch dimensions details from the taking-off sheets, plus a reference code number to the relevant library description. These dimension items are read and rearranged within the computer into a list in the order of the reference code numbers, so that they are in the same sequence as the library record itself.

It only remains to compare this list with the library and to print out the dimensions, extended where necessary, together with the appropriate description. The printing is by means of a 600 lines per minute printer and the format is very similar to the present one.

The Equipment

The basic input to the computer is 8-channel punched paper tape. Against each position on the tape a combination of up to 8 holes is punched. Each of these combinations represents a number, letter, punctuation mark or other symbol.

This tape is prepared using a tape punch with a very similar keyboard to an ordinary typewriter and it is checked for accuracy by a second operator using a verifier machine. A copy of the original tape is made at the same time and as errors are located they are automatically corrected by the verifier operator.

The computer recommended to handle the production of bills of quantities for firms in the London area is the Elliott 503. This system would be capable of producing over 1,300 bills in a year.

It consists of two paper tape readers for basic input purposes and two paper tape punches which produce tape for subsequent sundry printing. The central store of the machine consists of 8,192 registers (or words) of core storage. The access time to any one of these locations is 3½ micro-seconds! About 62,000 additions or subtractions can be performed in a second and nearly 20,000 multiplications per second! In addition to the core store three magnetic tape decks are to be used. These hold the magnetic tape which, for example, contains all the details of the standard library. These data are read section by section from the tape into the core store where any processing actually takes place. A 600-lines-a-minute printer is provided to produce the printed bills. This prints one line at a time in a manner somewhat like an ordinary punched card tabulator. 120 character positions are available on each line and each position has a repertoire of 56 characters.

The Standard Library

The main problem encountered in considering this computer application is the difficulty of defining the master file of preambles, preliminaries and descriptions which are required for the bills. It is estimated that there are 50,000 such items which are in general use and which will cover perhaps 90 per cent of the requirements for a particular bill.

Each item requires a unique reference code to define that particular description. This code consists of:

(*a*) the indicator (specifying the part of the building for cost analysis purposes, *e.g.*, sub-structures and external structures)
(*b*) the trade
(*c*) the section of the trade
(*d*) the descriptive heading within the trade section
(*e*) the item type (specifying whether the item is a cube, super, run or number and whether the description number following uses a sequential, fully-representative or partly-representative code)
(*f*) the description number.

(*a*) to (*e*) can all be represented by one alphabetical character; (*f*) requires four numeric digits.

When punched on to paper tape, these codes will be in the form:

ls A B C D E fs 1 2 3 4
(ls=letter shift symbol;
fs=figure shift symbol).

The four-digit description number is one of three types: either
a fully-representative code, or
a partly-representative code, or
a sequential code.

In the first case (*e.g.*, 1/2/3/4) each individual of the four defines one phrase of alphabetic description so that the four digits together provide a full description.

In the second case (*e.g.*, 12/34) the first two digits specify a part description which is common to several items. The final two digits are serially numbered within the first two.

In the case of a sequential code (*e.g.*, 1234) the descriptions are serially numbered using all four digits; it is of most value where part descriptions for items are non-repetitive and nothing can be gained by a representative coding technique.

The codes described previously define and locate the item (or preamble) description in the Standard Library, but to preserve all possible sizes for any description would not be easy since the various combinations are obviously very large. Instead, the size part of the description is fed into the computer with the actual dimensions, and is only temporarily

stored in the system until the appropriate description is found and then the two together are printed out on the bill of quantity.

Sizes are coded very simply, that is, in exactly the same way as they are required to be produced on the final bill. They are either in the form XX sp X sp XX if no fractions are involved, or XX sp X sp XX—XX/XX if a fractional length is involved; *e.g.*, yards, feet, inches and fractions of an inch.

The standard descriptions are stored within the computer in alpha/numeric order according to their reference codes. The building up of tape records involves punching on to paper tape the code letters and numbers followed by the appropriate description and a conversion factor, if applicable. This conversion factor indicates what constant number is to be used to divide into quantities which are subsequently extracted from the taking-off sheets (e.g., to reduce square feet to yards superficial). These paper tapes are read into the computer and written in the same form as they are required to be printed on the bill.

From time to time, additions, amendments and deletions have to be made to these records.

The method employed is to read the original tape records into the core store of the computer. At the same time the amendments, which are punched on to paper tape in code number order are read into the system and the necessary alterations made to the core store. The amended details are then copied on to a second magnetic tape.

The Computer Method

The taking-off procedure from drawings remains the same as at present except that two extra columns are necessary on the dimensions sheets for the insertion of the reference code and of the size description. These have to be written in against the measurements.

A page on the dimensions sheet might look as follows:

Reference No.	*Size Code*	*Dimensions*	*Abbreviated Description*
ABCDE 1634		2/3/2/ 7.0	Formwork to vertical face of conc. wall
		8.6	
		2/3/2/ 9.8	
		5.6	
ABCDE 1456		2 /232.2	Formwork to vertical face of retaining wall
		5.0	
		2 / 18.8	
		5.6	
		2 / 7.1	Ddt last
		4.10$	

The '$' symbol indicates that this set of dimensions is to be deducted for this reference number.

If a description is required which is not included in the standard library and in consequence no reference code is in existence a dummy code is allocated (e.g., in the form AACED 9999).

The letters prefixing the numbers will define the appropriate trade/sub-trade heading but the individual item cannot be found. These non-standard items are referred to as 'rogues.'

The reference code, size, dimensions together with a reference to the relevant page on the taking-off sheets and an indication as to whether the item is to be deducted or not is next punched on to paper tape and verified. These operations can either be performed at the office from which the work originates or on the other hand at a central service bureau. The first suggestion has the advantage that any queries arising could be readily cleared.

The paper tape thus produced is sent to the computer and written on to a magnetic tape. The items are still in the same order as they were on the taking-off sheets and have now to be rearranged into ascending order according to the reference code number. The computer is capable of sorting items very rapidly and several standard programmes are available to do this. The size of the reference code is immaterial in this respect and the time taken is the same whether the sorting key (i.e., the reference code number in this case) is a one digit number or a nine digit reference.

Once this rearrangement is complete a magnetic tape is written containing all dimensions items in order by the library reference code. The Standard Library tape containing all the descriptions, etc., is placed on the computer and read in conjunction with this dimensions tape. Both these tapes are, of course, in the same sequence and as the appropriate description for a reference code on the dimensions tape is located in the library so the description is printed out on the line printer. Simultaneously all dimensions for that particular code are accumulated and conversion factors are applied and the result is printed out to the right of the description in a manner very similar to the present procedure.

If necessary, details for each item including reference to the relevant taking-off sheet can be punched out on to paper tape at the same time and this by-product of the main job can be subsequently printed on automatic electric-typewriters. These typewriters have a paper tape reading mechanism which automatically operates the printing device.

In those sections of the Library where fully or partly-representative coding is employed, 'dittoes' will be printed out on the bill where appropriate. For example, if under the same trade, sub-trade headings for the descriptions required are for fully-representative codes:

1 2 3 4
1 2 3 7
1 2 4 7
1 2 4 8

the printing will appear thus ('full' means a full description is provided):

Full (1)	Full (2)	Full (3)	Full (4)
Do	Do	Do	Full (7)
Do	Do	Full (4)	Do
Do	Do	Do	Full (8)

Where the required descriptions are non-standard and are not found in the Library (*i.e.*, 'rogue' items), the reference code is printed out together with the relevant taking-off sheet number, and sufficient space is left on the print-out to enable a description to be entered by hand afterwards.

Costs

The costs of these operations vary according to two things. These are first, the number of dimensions—cubes, runs, squares—recorded on the taking-off sheets and secondly the number of entries on the bill of quantity.

A small sized bill with say an average of 2,250 dimension items and 1,170 descriptions on the bill would cost about £115 at the present time using the 803 Computers in the Elliott Service Bureau, although this figure would reduce to £75 when a 503 Computer becomes available. The corresponding figures for large sized bills with say 15,000 dimensions and 3,900 entries on the bill are £460 using the 803 and £325 using the 503.

If the Royal Institution of Chartered Surveyors rented a 503 Computer of its own, the cost of producing a small sized bill of quantity could be as low as £20 and a large sized bill would cost less than £100.

The Week in Parliament

From Our Own Correspondent in the House

Dr. Hill on Housing Policy

IN HIS MAIDEN SPEECH in the Commons as Minister of Housing and Local Government, DR. CHARLES HILL told MPs on November 6 (as briefly reported in our last issue) that estimates added up to a probable need for about 6m. houses to be built in Britain in the next 20 years, and at the present rate of building, ignoring the shortage of land, he forecast that 6m. or so houses would be built in that period.

Dr. Hill's first effort naturally aroused considerable interest, but in his comprehensive survey of the housing front, he was not quite at his best form. This is not surprising considering he has hardly had time to warm the Ministerial chair at the Department. Perhaps his failure to fire the imagination on this occasion is of itself an indication that Dr. Hill has soon realised he has facing him a problem of the utmost complexity.

Anyone expecting a flood of new ideas or some visionary housing prospectus linked to a grand planning strategy, must have been disappointed, but despite the customary party exchanges, Dr. Hill was fed with plenty of ideas and suggestions from the backbenches. There was a thought-provoking contribution from MR. WILLIAM DEEDES (Ashford), a former Parliamentary Secretary at the MoHLG, who sought to urge that the status of physical planning should be elevated and the contribution it could make to the national effort recognised.

Much more attention was paid in this debate to the planning aspect of the housing problem, overspill and town development. Coming to the Ministry afresh, DR. HILL maintained that the pro-

vision for overspill was probably the biggest challenge of all and population increases forecast for the bigger conurbations meant a very substantial overspill in the next 20 years. The Ministry's policies were being correspondingly reassessed.

Development so far had been mainly a matter of expanding quite small towns and this would go on but reassessment of the overall problems of the South-East with the new estimates of population and household increases, meant that they would have to examine the possibility of the expansion of a number of bigger towns which by the nature of things could take bigger expansion. 'Something of this kind is almost certainly necessary if adequate provision is to be made over the next 20 years,' he declared. Here was a clue to something new.

Dr. Hill said preliminary results of the census showed that in England and Wales there were 14.7m. households and 14.6m. dwellings. Since 1951 the population had increased by 5.3 per cent, the number of households by 12.1 per cent and the number of dwellings by 21 per cent. Slum clearance had removed 360,000 houses since 1956 and it was proceeding at the rate of 70,000 houses a year. Numerically the larger problem was that of obsolescence. If the stock of houses was taken as 16m. with, for purposes of calculation, a life of 100 years, 160,000 houses a year would be needed to replace the stock.

It was reasonable to assume that up to 2m. new families would appear in the next 20 years. They would need an average of up to 100,000 more houses a year. Then there was a definite but incalculable factor that greater prosperity was leading people to expect higher standards of housing and amenities.

After referring to the estimate of about 6m. new houses in the next 20 years, the Minister said he wanted to see the rate of production increased particularly in the northern and midland areas.

The Price of Land

No one denied that in many areas the price of land was very high, the Minister continued. This expressed the shortage of land in many places and the pressure on it. By protecting agricultural land and by the green belt policy the Government were helping in the process of putting up the price of land allowed for development, but the Government intended to adhere to the green belt policy.

Government policy was to see that more and more land was brought forward for development, within the existing urban areas as well as beyond the green belts. The high price of land in and around the outskirts of big towns was not without some benefit in that it was bringing forward for redevelopment some of the older low-density areas. Much more economical use of urban land, old and new, was required. They had to accept and encourage higher density development in suitable areas and this meant in many cases 'going up.' A great deal of valuable urban land was under-used today. If they were to meet the pressure on land which was likely in the next few years they simply had to make better use of the land coming forward for development and redevelopment and do this without sacrificing good planning or living standards.

The Minister said that at Kidbrooke 100 acres now accommodating Government establishments would be transferred to the LCC and would house 8,000 to 10,000 people. Discussions were at an early stage with the British Transport Commission about the possibility of using for housing some of its land in London that was not required for railway purposes. It was too early to say how much could be done.

Urban Renewal

On urban renewal, the Minister said that the centres of some of the larger towns were worn out and patches of redevelopment, while welcome, fell far short of what was needed. Major redevelopment was the only solution. A great deal was going on. About 250 redevelopment schemes of the central areas of towns and cities were now the subject of advice sought from the Ministry. To supplement this activity and to focus interest on it, a special urban planning group had been set up in the department charged with the task of making a comprehensive study of the problems of urban renewal. The group would work in close association with the Ministry of Transport. [This Ministry has a long term study group under Mr. C. D. Buchanan.]

The Commons was discussing an Opposition amendment regretting that the Gracious speech contained no proposals to provide an adequate supply of houses, to assist local authorities in dealing with the hardship caused by lack of accommodation, to prevent profiteering in land and house property or to plan for the wise distribution of employment and population throughout the country.

MR. MICHAEL STEWART, the Opposition's housing spokesman, dealing with the high cost of land, said the feverish demand for it was bound to increase. The remedy was the deliberate long-term creation of new magnets for employment and dwelling—new towns or, to think larger, new cities.

MR. DEEDES said it was important to know if the Government had a policy for commercial building and where it should go. Another Government supporter, MR. G. JOHNSON SMITH, said he resented the way in which the policy towards offices had been conducted. It should have been much tougher. Above a certain storey of offices, there should be flats. He urged the Minister to consider the proposal from the Civic Trust conference of July, 1960, for a land finance corporation.

The Housing Debate

ARCHITECTS ought to take note that of all the speakers in the Commons housing debate on November 6, including the two Government and two leading Opposition representatives, there was only one MP who bothered to mention them and their role and to speak up for them—Mr. Brian Batsford.

MR. BATSFORD recalled that Sir Keith Joseph had said last year that planning was concerned not only with where buildings should go but with what they looked like, adding that any form of design dictatorship would be death.

'Sometimes,' continued Mr. Batsford, 'when I look across the river and see that monolithic tombstone on the other side of the Thames, I wonder whether British architecture has not already one foot in the grave. We do not want dictatorship in design. Buildings cannot be designed by Government departments or by committees.

'In this country we have a very large number of first-class architects. All they lack is the freedom to express themselves. They are too hampered by restrictions, and they lack more comprehensive planning. I also suspect that far too many of our buildings are not designed by architects. Surely the Minister would hesitate before he recommended one of his patients to go to an unqualified doctor. In spite of the fact that some amateur doctors and amateur architects have been successful, I think it better to keep building as the responsibility of fully-qualified architects.'

The worst 'litter' was the permanent litter of badly-designed, poorly-planned housing development accompanied by the excrescence of street furniture which they saw all over the place. It was not enough to send comparatively mild directives to local authorities, because the time had come in town and country planning when stronger measures were wanted.

Office Building

Several speakers took a look at the part the building industry was playing and there were Conservative and Labour pleas for a tougher policy on office building. MR. JOHN DUGDALE, referring to the shortage of labour in the Black Country and Midlands, said that many buildings going up were unnecessary. There were the two buildings erected for the glory of Shell-Mex by workers who might have been building more houses to help the homeless and overcrowded people of London. It was his personal opinion that the Minister should nationalise a very large section of the building industry to improve its efficiency and also enable it to build far more houses at greater speed than today.

MR. DOUGLAS JAY advocated the IDC system for office building or the restoration of building licences for commercial development in SE England only.

MR. GRAHAM PAGE said he would aim at replacing subsidised local authority building by the new town procedure, not only for building new towns in the countryside but for building new towns within towns

He added: 'The Ministry or the DSIR should have a team working on new building techniques, discovering and testing them, and trying out quicker methods of building houses. Surely we do not have to go on taking the months that we do to build modern houses.'

MR. JAMES ALLASON (Hemel Hempstead) suggested investment allowances for houses built to let.

Replying to the debate, MR. JOHN MACLAY, Secretary of State for Scotland, said that even the increasing use of multi-storey building, so often necessary to

make the best use in density terms of precious central sites, often resulted in slower output. If they swung too far to local authority building there would be gross distortion of building, which had caused so much difficulty in Scotland.

In the House of Lords, VISCOUNT HAILSHAM, Minister of Science, replied on November 7 to criticisms of housing policy which had been made during speeches there on the Gracious Speech. He said that to increase the housing programme from 300,000 to 400,000 houses a year could be achieved only at the cost of accentuating our economic difficulties. Besides pointing out that the building industry was 'hopelessly overburdened,' he stressed that skilled men were not being trained on an adequate scale.

Training of Traffic Engineers

EXPLAINING what facilities existed in the United Kingdom to train highway and traffic engineers, MR. ERNEST MARPLES, Minister of Transport, in a written reply to Mr. Clive Bossom on November 8, said that all University courses in civil engineering included some instruction in highway engineering. He added:

'The degree courses of the following Universities also include some traffic engineering: Birmingham, Durham, Leeds, London (King's, Queen Mary and University Colleges), Manchester.

'Post-graduate courses specialising in highway and traffic engineering are available at: Birmingham University; Durham University (King's College, Newcastle); London University (University College); Royal College of Science and Technology, Glasgow. Evening courses in traffic engineering are also available at: Westminster Technical College, London; Northampton College, London; Hatfield Technical College; Royal College of Science and Technology, Glasgow (post-graduate).

'In addition to these facilities, short courses in traffic engineering are provided by the Road Research Laboratory and by the West Ham Technical College. From time to time other short courses and seminars are organised by such bodies as the University of Glasgow and the Institution of Municipal Engineers.'

Appointment in Cities

MR. BOSSOM also asked the Minister, on November 9, what discussions he had had with local highway authorities regarding the appointment of highway and traffic engineers in every large city in the United Kingdom to help work out the flow of traffic.

MR. MARPLES wrote: 'In December, 1960, my Department sent to all local highway authorities a memorandum giving advice on the contribution which traffic engineering can make to the smooth flow of traffic and suggesting the need for them to have staff trained in traffic engineering. I have recently been reviewing the facilities available in the Universities and Technical Colleges for training traffic engineers and I am proposing to have further discussions with the local authorities about their making the fullest use of these facilities.'

Other Business

M1 Progress

SIR BARNETT JANNER asked the Minister of Transport, on October 24, whether he had reached a decision on his plans for completing the Leicestershire portion of the London-Yorkshire motor road.

MR. ERNEST MARPLES wrote: 'We are continuing to make progress with the statutory procedures for the next sections of M1. The side roads order for the section in Northamptonshire has been made, and I expect to be in a position shortly to make the order for Leicestershire. Land acquisition negotiations are in hand. The order for South Derbyshire has been published in draft, and I expect shortly to publish the connecting roads scheme for the southern half of the motorway and the side road order for Nottinghamshire. Orders for the remaining sections of the motorway will be published as soon as possible.'

Covent Garden Market Authority

MR. CHRISTOPHER SOAMES, Minister of Agriculture, announced in a written reply on October 24 that he had signed an order constituting the Covent Garden Market Authority on October 30 and had appointed the following to be members of the authority:

Sir Ian Jacob (chairman), Mr. Frank Hollins (managing director), Mr. W. M. Balch, Mr. Charles Forte, Mr. Harold Samuel, Mr. Alex Samuels (the member nominated by the Minister of Transport), Mr. M. J. Verey and Sir Thomas Yates.

The Scottish Housing Bill

The major Scottish legislation of the new session is the Housing (Scotland) Bill, the Scottish equivalent of the Housing Bill which recently received the Royal Assent.

The new Bill was published on November 1. Its main purpose is to introduce into Scotland a financial need test for subsidies. At present they are paid at a flat rate of £24 a year on each house for 60 years. The Bill proposes two basic rates, one of £32 and the other of £12. The rate will be set after a resources test of a local authority's housing revenue account. This test will be applied from year to year so that where further building uses up a local authority's surplus or increases their deficit they will be able to qualify for a higher rate of subsidy.

Hovercraft on Building Sites

Control over the use of small hovercraft on roads is proposed under a clause which has been added to the Road Traffic Bill, published on November 2. This Bill passed through the Lords last session but was not proceeded with in the Commons. This new clause is intended to cover the small type of hovercraft visualised for use on muddy building sites. The Minister is intending to take powers to issue special licences for experimental hover vehicles designed for use on road and waterways.

Imports of Natural Gas

Permission for the Gas Council to proceed with proposals for the importation of natural gas from North Africa was announced by MR. RICHARD WOOD, Minister of Power, on November 3. He indicated that in reaching this decision he had, among several things, taken into account that comparatively small capital cost of this scheme which was one of several developments which the gas industry was contemplating within the next few years.

According to the recent White Paper on public investment the scheme for importing liquefied natural gas would involve investment in an importing terminal and high pressure trunk main system to transmit the gas.

Unemployment Benefit and Stoppages

MRS. BRADDOCK asked the Minister of Pensions and National Insurance on November 6, why a decision was taken to exclude a number of men from unemployment benefit who had been made redundant by John Laing & Son Ltd. at the Littlewoods contract in Derby-lane, Liverpool, on its closure by the company; if he was aware that the decision indefinitely to suspend operatives from benefit, in an area where alternative employment in the building industry was unobtainable at this time, had caused unnecessary hardship; and if he would have the decision reviewed.

MRS. MARGARET THATCHER, Parliamentary Secretary, wrote: 'Entitlement to unemployment benefit is decided by independent statutory authorities. I understand that, in the case referred to, the insurance officer decided that the men concerned were disqualified for benefit because they had lost their employment by reason of a stoppage of work due to a trade dispute at their place of employment. The Minister has no power to interfere in this decision but any claimant who disagrees with it can, of course, appeal to the local tribunal and, from it, to the National Insurance Commissioner.'

Land for Houses in Home Counties

MR. JOHN HALL asked the Minister of Housing and Local Government on November 7 what was the total acreage of land available for housing in the home counties; and how long this would last at the present rate of building.

DR. CHARLES HILL wrote: 'On such information as is available, the best overall estimate I can make is that there is land to last about eight years on the basis of present allocations and approvals. I am in touch with the planning authorities on the allocation of further land up to 1981, and the supply of land for housing will be one of the factors to be re-assessed in the examination of the planning needs of the south-east generally.'

Building for the Youth Service

MR. FREDERICK WILLEY asked the Minister of Education on November 9 for a statement on the progress made in the youth service building programme to the value of £3m. for starts in 1960-62.

SIR DAVID ECCLES wrote: 'The whole programme has been allocated. Two hundred projects, to a value of £1¼m. have been finally approved and building work has started on at least 130 of these to a value of £¾m. One hundred and eighty other projects to a value of £1¼m. have passed the preliminary planning stages.'

Firm Prices for Materials and Services

Fourth List of Manufacturers Willing to Quote Over a Period

The fourth list of specialists, sub-contractors and manufacturers willing to quote firm prices over a period is printed below. Earlier lists appeared in 'The Builder' of October 27 and November 3 and 10. Other firms prepared to quote should write to the Editor, 'The Builder,' 4 Catherine-street, Aldwych, WC2, giving the names of their products and the period over which they are prepared to hold quotations.

Architectural Metal Work

THE BOSTWICK GATE AND SHUTTER CO. LTD., Hythe-road, Willesden, London, NW10.

PERIOD: Normally 12 months, but always prepared to consider specific and clearly defined demands for longer periods.

PRODUCT: Architectural metal work.

Bricks and Tiles

STONEHENGE BRICKS LTD., Mile Tree-road, Leighton Buzzard, Bedfordshire.

PERIOD: Up to 12 months.

PRODUCTS: Stonehenge sandlime facing bricks and Stonehenge sandlime loadbearing bricks.

COMMENT: Contracts for longer periods quoted by negotiation.

SUSSEX & DORKING UNITED BRICK COS. LTD., Graylands, Horsham, Sussex.

PERIOD: Up to 24 months from date of offer on basis of six month intervals.

PRODUCT: All ceramic products; bricks, engineering, loadbearing and facing; and ceramic cladding and infill panels, solar screens and 'Glaztex' structural facings.

Glazing

MILBURN & ELLIS, 87-88 Claypath, Durham.

PERIOD: At least 12 months.

PRODUCT: All types of glazing work, including patent glazing.

Joinery

DAVID CHASTON (JOINERY) LTD., Essex-road, Hoddesdon, Herts.

PERIOD: 18 months.

PRODUCT: Specialist joinery.

COMMENT: When requested, the company has offered estimates on a firm price basis since the introduction of firm price tendering by the MoW.

H. R. MIDDLETON & CO. LTD., Market Works, The Conge, Great Yarmouth.

PERIOD: 15 months; longer periods after negotiation.

PRODUCT: High class joinery.

Mastic Asphalt

THE NATURAL ASPHALTE MINE-OWNERS AND MANUFACTURERS COUNCIL, 14 Howick-place, Victoria-street, London, SW1.

PRODUCTS: Members of this council listed in 'The Builder' of November 10, quote fixed prices for natural asphalt and limestone mastic asphalt, i.e., all types of mastic asphalt for building.

NATIONAL ASSOCIATION OF MASTER ASPHALTERS, 9 Clarges-street, London, W1.

ASPHALTIC (LONDON) LTD., 206 Upper-street, Islington, N1.

ASSOCIATED ASPHALT CO. LTD., 10 Shrubbery-road, Streatham, London, SW16.

THE BIRMINGHAM ASPHALTE & PAVING CO. LTD., 25 Whitmore-road, Small Heath, Birmingham 10.

BOLTON & HAYES LTD., Viking House, Manchester-road, Bolton, Lancs.

WILLIAM BRIGGS & SONS LTD., East Camperdown-street, Dundee.

CAMBRIDGE ASPHALTE CO. LTD., Swann-road, Cambridge.

COVERITE (ASPHALTERS) LTD., Palace Gates Station, Bridge-road, Wood Green, N22.

DAVIES BROTHERS (ASPHALTERS) LTD., 144-146 Oxford-road, Manchester, 13.

DURABLE ASPHALTE CO. LTD., Durable House, 351 Caledonian-road, N1.

DURASTIC LTD., Victoria Works, Burdett-road, London, E14.

EXCEL ASPHALTE CO. LTD., Broadway-chambers, Hammersmith, London, W6.

FALDO ASPHALTE CO. LTD., N.E.M. House, Worple-road, London, SW19.

FIELD & PALMER LTD., Station-road, Wood Green, N22.

THE IMPROVED ASPHALTE CO. LTD., 45-51 Neptune-street, London, SE16.

MOUNTFIELD JUNIOR, 11 Breckside Park, Liverpool 6.

NATURAL ROCK ASPHALTE LTD., Bank Chambers, 361-363 Goswell-road, London, EC1.

THE OXFORD ASPHALT CO., 77a St. Clements-street, Oxford.

C. PASINI (IPSWICH) LTD., Gatacre-road, Ipswich, Suffolk.

PERMANITE LTD., 455 Old Ford-road, Bow, E3.

THE ROCK ASPHALTE CO. LTD., 7-9 The Broadway, Hammersmith, W6.

J. TAYLOR & SONS (ASPHALTERS) LTD., 42 Clerkenwell-close, EC1.

UNITY ASPHALT CO. (LONDON) LTD., Essex House, High-street, Stratford, E15.

PERIOD: The above 22 companies, all members of the National Association of Master Asphalters, are willing to quote fixed prices by arrangement.

PRODUCT: Mastic asphalt for roofing, flooring and tanking.

Metal Windows and Patent Glazing

RELIANCE SUPPLY AND REPAIR SERVICES, 66 Glenavon-road, Stratford, London, E15.

PERIOD: Twelve months subject to acceptance within 6 months of quotation date.

PRODUCTS: Window opening gearing, cloakroom and drying equipment, malleable building specialities, steel window maintenance and servicing.

COMMENT: Firm prices for products not listed may be quoted by arrangement.

Mosaics

MARLOW MOSAICS, Crown-lane, Marlow, Bucks.

PERIOD: Until the order is completed.

PRODUCT: Relief and free standing mosaic sculpture, coats of arms, panels, plaques, murals in mosaic sculpture, and mosaic tables and screens.

Reinforced Concrete

DAVID CHASTON LTD., Essex-road, Hoddesdon, Herts.

PERIOD: 18 months.

PRODUCT: All types of precast and prestressed structural concrete products, flooring, exposed aggregate panelling, etc.

COMMENT: When requested, the company has offered estimates on a firm price basis since the introduction of firm price tendering by the MoW.

THE MODULAR CONCRETE CO. LTD., Construction Division, 1260 London-road, Norbury, SW16.

PERIOD: Up to 24 months.

PRODUCT: All forms of reinforced concrete, design and construction.

Roofing Tiles

DRIROOF TILES LTD., Mile Tree-road, Leighton Buzzard, Bedfordshire.

PERIOD: Up to 12 months.

PRODUCTS: Driroof concrete plain roof tiles and Driroof concrete interlocking roof tiles.

COMMENT: Contracts for longer periods quoted by negotiation.

Steelwork

LIGHT STEELWORK (1925) LTD., Hythe-road, Willesden, London, NW10.

PERIOD: Generally 12 months, but always prepared to consider longer periods for specific and clearly defined demands.

PRODUCT: Light steelwork.

Suspended Ceilings

CLARK & FENN LTD., Rectory Grove, London, SW4.

PERIOD: Up to 24 months.

PRODUCT: 'Echostop' and 'Dekora' plaster ceiling tiles and 'Travacoustic' mineral fibre tiles.

COMMENT: This offer covers the complete supply and installation of the suspended ceiling using the above products.

Timber and Mouldings

W. H. NEWSON & SONS LTD., 61 Pimlico-road, London, SW1.

PERIOD: 18 months.

PRODUCT: High-class softwood and hardwood mouldings; western red cedar claddings and mouldings.

Timber Engineering Products

H. NEWSUM SONS AND CO. LTD., Gainsborough, Lincs.

PERIOD: Up to 24 months.

PRODUCTS: Timber decking, beams, columns, shell roofs, etc.

COMMENT: This company has been offering firm prices since the introduction of this policy by the Ministry of Works.

Wrought Iron and Mild Steel

NEW CODE PRODUCTS LTD., 68 Park-place, Cardiff.

PERIOD: Up to 24 months.

PRODUCTS: Wrought iron and mild steel gates, railings, etc.

COMMENT: This company has always been willing to quote firm prices. Negotiation apart, its standard range prices will hold firm until July 31, 1962.

Firm Price Tendering in Essex

County Council to Extend Experimental Period

FROM A CORRESPONDENT

FIRM PRICE TENDERING is to be continued in Essex for a further experimental period, the county council has decided. This will apply to any contract for building and civil engineering works of an estimated value not exceeding £50,000 which has been thoroughly planned in advance and has an estimated contract period not exceeding two years to be entered into on a firm price basis.

The decision is subject to the exception of any contract where a price fluctuation condition is considered by the committee or sub-committee concerned with the invitation of tenders to be desirable because of special circumstances.

Reporting on this, the council's general purposes committee recall that the council in October, 1960, decided that the practice of entering into contracts for building and civil engineering works on a firm price basis up to an estimated value of £75,000, be continued for a further period of one year from November 1, 1960. A condition precedent to the application of this policy was that the contract should have been thoroughly planned in advance and have an estimated contract period not exceeding two years.

The committee state: 'We have considered a report from the county architect upon the working of the scheme during the past year which points to the need under present conditions for some restriction of the upper limit of cost if the practice of firm price tendering is to continue. There is obviously a stage at which it would be uneconomic for the county council to pay extra costs which a contractor may write into his tender for his protection.'

They refer to changes within the building industry, the level of price and the wage increase and remark that these conditions 'create uncertainty in the minds of tenderers and militate against firm price tendering.'

The committee add: 'We informed the council at its May meeting of the difficulties found by the Education Committee in obtaining tenders for educational building projects and their decision to invite alternative tenders on (a) a firm price basis and (b) with a price fluctuation clause, a course of action which has now been adopted by the Welfare Committee. It may be expected that it will be necessary for committees more frequently to exercise the discretion given to them in this connection.

'We do not feel it would be right to abandon the principle of firm price tendering but there are difficulties in deciding for how long it is reasonable to expect a contractor to look ahead and anticipate what variations are likely to occur in the building industry. So far as we are aware there is no objection to the extension of the practice so far as concerns contracts for road and bridge works.'

Brixton School Prizegiving

New College Building Needed

IN HIS REPORT at the Brixton School of Building annual prizegiving held at County Hall on October 24 the principal, MR. D. A. G. REID, BSC(ENG), MICE, MISTRUCT.E, AIOB, said that student numbers had risen by 25 per cent in two years and that the prospect of a long wait for the new college building was causing some concern. He also referred to the revision of old and creation of new courses which were taking place, and to the appointment of Mr. E. J. Elmes, AIOB, AIPHE, to the revived post of vice-principal.

The prizes were presented by MR. P. E. TRENCH, OBE, TD, BSC, FIOB, Director of the NFBTE, who reviewed the changes which had taken place in the industry during the past 60 years. He mentioned the prosperity of the country and of the building industry, but compared the state of the national economy to a 'razor edge.' Waste in production must be avoided, he said, to ensure continual prosperity. He spoke of the need for changes in training, for increased competence in industry, and of the responsibility that students from technical colleges must assume to ensure progress. He emphasised the need for those who won prizes to continue learning. The building industry had met a 20 per cent increase in demand in the past two years without a significant increase in labour. Mr. Trench considered this a proud achievement which should persuade students that they were in the right industry. He stressed the need for contributions from all those in the industry, for efficient training and for co-operation at all levels to ensure future progress.

Accounting Methods for Small Builders

New NFBTE Publication

WITH THE AIM of encouraging small building firms to modernise their accounting procedures the National Federation of Building Trades Employers has just published 'Accounting Methods,' a book written for the small builder employing up to 20 men who may have little clerical assistance. There are many thousands of such firms who carry out jobbing works, small contracts in competition and occasionally private houses for individual private owners. Since there are considerable variations in the clerical routines of these firms, it is not easy to evolve standard clerical and accounting procedures, and essential management information, which will be applicable or suitable to all.

The book is divided into two parts. Part 1 is for all small builders who do not undertake work on which interim payments are made. It consists of a series of clerical procedures, specially designed to fulfil the builder's minimum needs for costing work and charging clients' accounts, together with information which will assist him and his accountant in dealing with taxation. Part 2 shows the builder whose business is expanding how to prepare, without outside assistance, a monthly profit statement, a form of overheads control, and other managerial information which will assist him to assess promptly and regularly the progress of his business, indicate trends, and guide him in determining the policy of the firm.

No attempt is made to deal with the preparation of the formal annual accounts which are normally drawn up by the firm's accountant or auditor, but if the system recommended is followed the compilation of the annual accounts will be materially facilitated.

The book contains reproductions of the standard forms, which are obtainable from the Regional Federations of the NFBTE or from office stationery retailers. It has been compiled by the Building Advisory Service for the National Federation, at the request and with the assistance of its smaller firms committee. Copies, price £1 1s. post free (11s. post free to member firms of the NFBTE), are obtainable from the Federation's headquarters at 82 New Cavendish-street, London, W1.

Aluminium and Magnesium Powders

MANY DESTRUCTIVE EXPLOSIONS have occurred during the manufacture or handling of aluminium and magnesium powders. These powders are in wide use in the chemical, paint, photographic and toy industries. Precautions necessary during the production and storage of powders of aluminium and magnesium and their alloys are given in a technical information sheet (No. 5003) issued by the Fire Protection Association. Single copies of the sheet may be obtained, without cost, on application to the Fire Protection Association, 31-45 Gresham-street, London, EC2.

Four Conversation Pieces

1. With a General Foreman

Place—site office. Day—Wednesday. Time—11.30 a.m.

JOHN, what are your men going to do next week ?

What do you mean, next week ?

What I say, next week—Monday, Tuesday, Wednesday, Thursday, Friday.

But to-day's only Wednesday!

Have you thought about next week ?

Course not, how can I think about next week before I know what the men will do this week ?

Don't you know what the men will do this week ?

Of course not—it might rain on Friday.

Well, what about tomorrow ?

Ah, now you are talking! If Jim finishes that lift of brickwork today, he and his gang can start erecting the scaffold on the other block.

But Jim's a bricklayer; isn't it the labourers' job to put up scaffolding ?

We don't worry about that. This is a family firm and we all muck in together.

But you pay Jim 6d. an hour more because he can lay bricks ; while he is putting up scaffolding, there are no bricks laid.

Yes, I know, but it can't be helped.

Why haven't the labourers got ahead and put up the next lot of scaffolding ?

He can't get ahead.

You said 'he'; there are four bricklayers, so there should be two labourers.

I agree, but the boss said he could only spare one. Mind you he's a good bloke, works like hell and if the brickies don't mind fetching their mortar now and again, he manages.

He hasn't managed this time.

Well, that is not his fault, he's got to carry those bricks nearly sixty yards.

Why were the bricks put on that side of the site ?

The road is that side and the only place the lorry could go.

But the ground is quite firm; couldn't the lorry have run over to this side ?

He could have, but I should probably be stung for a five bob tip.

It would have been cheaper than Mike's time walking backwards and forwards with 16 bricks at a time.

I suppose it would, but we have got to pay Mike anyway.

Back to the Scaffolding

To come back to our scaffolding, there doesn't appear to be much in that heap; is it enough for what you want ?

No, but the guv'nor is going around the other sites to see what he can find. A bit short, you know.

How much do you want ?

I don't know, about 20 lengths should see us through. I think we are all right for putlogs.

Clips ?

Oh, I expect the guv'nor will pick those up as well. If he doesn't I can easily ring the yard. They've plenty.

But you'll have to wait while they bring them out.

Not for very long; the lorry is back and fro all day. You've only to ring up and almost before you can put the 'phone down, the lorry is here with it.

Supposing it is not in stock ?

That doesn't make much difference. The driver just calls in on the merchants and then comes on here.

But he has to waste time getting an order.

What's he want an order for ? The builders' merchant knows him, he's worked for us for years.

A rather expensive way, isn't it ?

Maybe, but we've plenty of lorries. If they were not running around, they would be in the yard and then the boss would have something to say. 'Idle time' is a favourite of his.

Let's get back to the scaffold—supposing the boss can't find enough ?

Well, he will have to hire some.

But that will take a day or two.

Sure to!

What will the bricklayers be doing in the meantime ?

I shall have to find them something else.

Such as ?

I don't know off-hand, but I'll find them something.

Could you lend them to another site ?

No ruddy fear, I'd never see them back again. I'm hanging on to them until every bit of brickwork is finished. They can always help out on the concreting. I want some more men for the concrete gang.

How Many is a Concrete Gang ?

How many in your concrete gang ?

Seven, why ?

Let's turn it around, why seven ?

Seven is a concrete gang.

What do they do ?

One on the sand and ballast dragline, one on the silo, the driver, two barrowing and two spreading. Seven—a concrete gang is always seven.

Doesn't the chap on the silo have an easy time ?

Yes, but sometimes they change over.

Couldn't the driver work the silo ?

We've been doing it this way since they invented cement.

But they didn't have silos in those days.

You'd get into trouble with the unions, anyway.

Why ?

Well, it's never been done before.

It has been done on other sites.

I expect it was those national firms—our firm is different.

Could you try it ?

I don't think the men would wear it. They are used to this way, and you can't teach old dogs new tricks.

How many barrow loads do you get from a mix ?

Three, why ?

I wondered why you only had two barrowmen.

Two is the right number in a team of seven.

Why ?

Don't you know anything about building ? That's the team !

Who takes the third barrowload ?

The man who takes the first load. He has loads 1, 3 and 5, and the second man gets 2, 4 and 6. The work is even over every two mixes.

But doesn't the mixer have to wait for the first man to get back ?

That's not the fault of the team, it's because it is rather a long run.

Why is the run so long ?

I didn't have any option. The hire company dumped the silo and mixer there a week before we started work on the site. It is going to be darned awkward, because we have got to dig a trench between it and the gate.

Won't the trench come under this hut ?

Yes, but we can soon shift this, but it will be a nuisance because the GPO are sure to take a week to move the 'phone.

Have you warned the GPO ?

How can I until I know when we will start the trench ?

When will you start the trench ?

Your guess is as good as mine—the guv'nor has been promising me labourers for weeks.

Supposing you had three barrows, the mixer driver could tip out the third load and get on with his next mix.

He couldn't do that.

Why not ?

What's he going to say ? You have already wanted him to work the silo.

What does he do while he is waiting for the third mix to be tipped out ?

He just has to wait.

What does he do whilst the batch is being mixed ?

He just waits, but I see your point about the silo.

If, instead of waiting, he tipped out the third load, he'd be able to get the next mix ready almost as soon as the second man was back.

Perhaps he would, but where would he get his barrow from ?

The first man would come back, leave an empty barrow and take away filled barrow No. 3.

But what about No. 2 when it was his turn ?

Number 2 takes the barrow left by No. 1.

Why Change It?

You can't do it!

Why not?

They'd never know which barrow belonged to who. It's too radical a change. Anyway, why change it? It's working all right like this.

Is it working all right ? What does your concrete cost you ?

Cost me? It doesn't cost *me* anything.

Well, what is it costing the firm?

How should I know?

Well, how much have you got for concrete in the bill?

That's the guv'nor's business. He don't tell me things like that.

Didn't he tell you what labour you needed and how much cement you should use?

No, he leaves it to me. I get as much labour out of him as I can. Mind you, he

is always short of labour; very busy we are. Cement, I just order as I want it. On other sites I have always been careful to order 6 tons—you save a bit that way.

Supposing you don't need 6 tons?

If there is any over the lorry would take it away when we are clearing up the site. There is always stacks of stuff to go back to the yard.

Doesn't it get hard?

Sometimes, but it is usually only the bottom layer. I think the damp comes up from the ground. Somehow you never seem to get down to that bottom layer. You are getting near it when a new lot arrives and has to be stacked on top of it. Then there is the stuff at the back of the hut, you never seem to get to that either.

The Way In

John, what were you before you were made GF?

Foreman brickie, why?

What happened when you were promoted?

What happened? Nothing, why? The guv'nor just came along and asked me if I'd like the job.

And you said 'yes'.

Not at first I didn't. I wanted to know what it was worth. He offered me another £1 a week, but I stuck out for 30s.

Then what happened?

The guv'nor said he'd a new job starting in a fortnight, and when I had finished the job I was on, I had better go with old Tom, who would put me wise.

Did he?

Not him! Mind you, it took me a week to finish the job I was on, so I only had a week with him. Didn't really have a week. On the Tuesday the guv'nor came down and said Lady Jones-Brown's chimney was smoking again and he has nobody to spare, and would I help out. Took me until Wednesday night.

What did old Tom teach you?

Nothing I didn't know already. He was old and crabby. Kept on about what men did before the war. Went chasing around the site playing blue murder. No wonder his blokes were always leaving. Put me up to one or two old wrinkles to fool the clerk of works. Also told me what to say when the boss got riled.

What have you learned since then?

I've learned a lot. The first month was enough to drive anyone crazy, although the boss came down every day. Seemed a bit disappointed. I think he expected wonders because I was a new broom. Then, of course, he put all my old mates under me. That didn't help, they tried on some rare old larks. At the end of the month it was night school for me.

What did you learn?

I learned a heck of a lot about the other trades—shouldn't have been able to carry on otherwise.

Did they teach you anything apart from technical stuff?

Yes, they taught me how to take off quantities and a lot about setting out and reading drawings. What they should have taught me was how to read what was missing on the drawings.

Anything else?

I don't know about teaching, but they had various blokes who came and lectured us on things. Very airy-fairy, talked about things like planning. Sounded all right, but when would I have time to plan? Then there was another one; shouldn't think he'd ever seen a site, said we ought to study the work. Cut out the stooping and lifting half your body each time you picked up a brick. Sounded a bit cissy at the time, but when I get a touch of my lumbago, I think he might have had something. Excuse me a moment, will you? What is it, Bill? Finished that already? Let's see what we can find you. Yes, here's a job—no, we haven't got the timber for that yet: you can take this if I've got a drawing: here's the drawing, it's only ¼th-scale, but you'll be able to manage; if not, let me know. What, you can't lift that? Look around for someone who is not busy and get him to give you a hand. If you can't find any 4 by 2 let me know and I'll get on the blower for some.

Sorry about that, sir. What about a cup of tea? Sugar? You never told me why the guv'nor sent you down here.

C. A. FRANCIS

Record Fire Losses

Need for Fire-Separating Walls

A REPORT in the current issue of the 'Fire Protection Bulletin' shows that six fires, each causing damage of over £1m., during 1959 and 1960 contributed largely to the record fire losses of £44m. in each of these years.

Large undivided single-storey factories covering many acres were involved in a number of these million pound fires as well as other smaller fires. Lack of fire-separation, common to this type of factory, allows rapid and extensive fire spread and makes fire fighting difficult. The need for uninterrupted transfer of goods within a factory by means of conveyors, however, causes fire separating walls to be considered an impediment to production.

An article shows how fire separation can be provided in factories where continuous conveyor systems are installed. In particular it shows how openings made in fire separating walls, to permit the passage of conveyors, may be protected against fire and smoke. Many buildings have been destroyed when fire has spread through such openings. Had they been protected fire would have been confined to the area of origin and the cost of damage substantially reduced.

Reports of some industrial fires are also given in this issue of the 'Fire Protection Bulletin,' which is issued free to members of the Fire Protection Association (31/45 Gresham-street, London, EC2) and to non-members for 1s. 6d.

London County Council

Some Recent Decisions

Planning and Building Applications

DURING THE SIX MONTHS, April to September, 1961, the Town Planning Committee dealt with nearly 14,000 applications under the Town Planning and Building Act. In addition, 1,946 certificates were granted or requirements made under the Factories Act (means of escape in case of fire) and 11 new petrol filling stations approved. Ninety-five appeals were made to the Minister of Housing and Local Government against the Council's decisions on planning applications; in 70 cases the Council's decision was upheld. Action for the enforcement of planning control was taken in 24 cases.

High Buildings

THE TOWN PLANNING COMMITTEE has decided that the consultations which normally take place with owners of adjoining sites on all applications for planning permission for buildings over 100 feet high shall be dispensed with where it is obvious to the Council's officers that there are strong reasons for recommending outright refusal.

Senior Quantity Surveyors' Salaries

IN VIEW of the substantial increase in recent years in the volume and complexity of the work of senior quantity surveyors, the salary scale (£1,750-£2,050) for this grade is to be improved to £2,170 rising by annual increments of £85 to £2,425 and thence by an annual increment of £80 to £2,505.

Strand Pedestrian Subway

THE ROADS COMMITTEE of the LCC has approved the layout of a pedestrian subway from the junction of Duncannon-street and Adelaide-street to the Strand underground station, with entrances from Charing Cross station forecourt, the north and south sides of the Strand, Duncannon-street and Adelaide-street. At some future date, a connecting subway leading to the north side of the Strand east of Duncannon-street may be added.

Strand Underpass

THE CONSULTING ENGINEERS, Messrs. Frederick S. Snow and Partners, have reported on the necessary alterations to the disused Kingsway tramway tunnel to make part of it suitable for use by traffic between Waterloo Bridge and Kingsway. It would normally be used for northbound traffic only, but, if necessary, could be used in the other direction or for two-way traffic. Work should start in April next year. The estimated cost, excluding the canopy, is £797,800—£197,800 more than originally estimated. The increase is due to the higher cost of structural work which has become apparent now that the design has been prepared in detail, to higher standards of finish to the walls and ceiling and to increases, estimated at £60,000, in the cost of labour and materials.

Town Planning Decisions

Minister Allows Green Belt Appeal

Residential Development at Walton

THE APPEAL of Day and Son (Builders) Ltd., against the refusal of Walton and Weybridge Council to permit residential development on land at Homefield-road and Field Common-lane, Walton, has been allowed by the Minister of Housing and Local Government.

In his report to the Minister, Mr. R. H. Heath, AMTPI, ARICS, the Inspector who conducted the inquiry, noted that the local authority had decided for financial reasons that redevelopment of the whole area was impossible and owners of property were being encouraged to rebuild. He considered that development of the appeal site as proposed could ultimately provide a more satisfactory unit of residential development without any great loss to agriculture; have no appreciable effect on the visual amenity of the district; and constitute only a minor intrusion into the green belt.

The Minister agreed with the inspector that the appeal site's proposed development would involve no serious loss of green belt land. On the other hand, he noted that some residents would welcome the improvements in general conditions which would be expected if the development was carried out. The Minister accepted the inspector's recommendation, and gave permission for residential development, subject to the condition that the layout, siting and appearance of the buildings will be as may be agreed with the local planning authority or, in default of agreement, as determined by the Minister.

As a result of the Minister's decision another inquiry concerning land at Field Common-lane has been cancelled.

High Densities Accepted to Preserve Natural Amenity

Comprehensive Development Advocated by Minister

WITHOUT PREJUDICE to the submission of a new application, the Minister of Housing and Local Government has dismissed appeals by John C. Nicholls, Ltd., against (1) the refusal of the Havant and Waterloo UDC, acting on behalf of the Hampshire CC, to permit the erection of 119 flats in 4 four-storey blocks and 5 nine-storey blocks, with 119 garages, on land adjoining Wraysbury House, Long Copse-lane, Emsworth; and (2) the failure of the same authority to issue, within the statutory period, notice of their decision on an application for permission to erect 8 four-storey blocks of flats comprising 64 flats, and 27 dwellings, on the same land.

In his report, the inspector states that both councils accepted the fact that development with individual houses or bungalows would destroy the natural amenities of the site, which were very considerable owing to the fine trees there. The local residents would, quite naturally, prefer the site to be developed in conformity with adjacent development. The effect of some of the adjacent development, in the form of houses and bungalows, could be seen from the south-east, where one section presented an unbroken concentration of tiled roofs.

The inspector thought that it would be little short of vandalism to sacrifice the trees on the appeal land in order to develop it in a similar way to the adjoining development. In his opinion, a solution was a scheme of development which would retain as many of the trees as possible, taking full advantage of their value as an amenity feature. He thought that nine-storey blocks of flats would probably be overpowering, but that seven-storey blocks could be satisfactory if carefully sited in relation to the better trees and at a reasonable distance from the road frontages and from existing development. He could see no particular objection to a partial penthouse storey, to mask the lift mechanism and tank room, if carefully related to the design of the blocks. The seven-storey blocks should be regarded as providing vertical punctuation to the scheme as a whole, with lower blocks of not more than three storeys, so disposed as to be complementary to them and, similarly, not too near to the existing development.

Inclusion of Maisonettes

He thought, too, that three-storey blocks might be a more economical form of development than four-storey blocks, but he would not object to the inclusion of one-tier maisonettes within the three storeys, or to one or two small blocks of two-tier maisonettes, in suitable positions. Garages should not, he stated, be sited directly on the road frontages, nor so near to adjacent dwellings as to cause any nuisance. In his opinion, a fair allocation on the site would be 100 flats which, at three persons per flat, would be 16 flats and 48 persons to the acre. Although this was considerably in excess of the present average density in the area, it was less than that proposed by the appellants, and within the range of what the councils would be willing to accept.

The inspector recommended that both appeals be dismissed, but without prejudice to the submission of a new application based on this opinion and providing for the preservation of Wraysbury House and gardens, and for road widening on the frontages without the sacrifice of trees. The reasons for his recommendation were: (i) the proposed density and the tall blocks in the application for 119 flats were too high in this position; (ii) whilst the density in the application for 64 flats and 27 dwellings was reasonable, the components did not produce a satisfactory form of development; (iii) development with detached dwellings would result in a dull and uneconomic use of the site and the loss of many fine trees; (iv) the continuing demand for building land made it imperative that high densities be accepted on appropriate sites, of which this was one.

In the course of his decision the Minister stated that he had given careful consideration to the representations made on behalf of local residents. He understood their objection to a proposal to build tall blocks of flats near their dwellings, but he was impressed by the advantages to be gained by developing the site in the manner suggested by the inspector. He thought that a scheme of development on those lines, in which the taller buildings were carefully sited so as to avoid overlooking existing buildings on the boundaries of the appeal site and were carefully designed and built of suitable materials, need not give offence. He agreed with the inspector that it would be preferable to development of the site with separate houses. He decided, therefore, to accept the inspector's recommendations. Accordingly, he dismissed both the appeals, but his decision was without prejudice to the submission of a new application for the development of the land on the lines suggested by the inspector.

Surrey Flats Plan Halved

Minister Allows Conversion

THE MINISTER OF HOUSING AND LOCAL GOVERNMENT has announced his decision concerning future building plans in Madeira-road, West Byfleet, Surrey, following a planning appeal held recently at Woking. Woking Council had refused the erection of a four-storey block of 12 flats and the conversion of the existing house, Aldeburgh, into two flats, and it was against this that Mr. S. C. Turner had appealed.

The inspector who conducted the inquiry recommended that the part of the proposal relating to the conversion of Aldeburgh be allowed as it would not materially affect existing residential amenities. He recommended that the part of the appeal relating to the erection of a four-storey block of 12 flats be dismissed on the grounds that it would conflict with the adjoining quiet residential amenities and result in a reduction of the values of existing nearby properties: would increase traffic, adding to the hazards of road safety; and that the bulk of the proposed block would dominate the adjoining development and would conflict with the appearance of the detached and semi-detached houses near the site.

The inspector thought a more satisfactory solution for the development of the site, which would allow a more intensive use of it than by way of conventional housing, would be a two-storey block of six flats. This would at the same time conform to permitted density standards.

In agreeing with the inspector's findings, the Minister accepted the latter suggestion, and allowed the appeal to the extent that he permitted the conversion of Aldeburgh into two flats. In dismissing the part of the appeal dealing with the four-storey block, he did so without prejudice to the submission of a fresh application as indicated.

Hi, Folks!

The Building Trade in Canada

BY OUR SPECIAL CORRESPONDENT

A MAP OF CANADA cannot give more than an impression of that enormous country's paucity of population and the small number of important towns. We are apt to forget that, although it is many times the size of Britain, the population is only 18 million or so.* We know enough from reading, films, photos and hearsay to form a fair idea of such cities as Montreal, Toronto or Vancouver, but there are only a few cities of that size. If the population of these is subtracted from the total, it will be easily appreciated that the other small dots on the map are relatively unimportant—that is to say, from a builder's or architect's point of view.

It is only by travelling in America (especially Canada and the USA) that one can properly appreciate what enormous basic differences there are between that continent and Europe. I now know the truth of this, having just returned from a ten weeks' tour, from New York to the west and back to Toronto, taking in the prairies to Saskatoon; Calgary, noted for its steer-roping contests; up into the Rockies to Banff Springs, glorious among mountains and lakes; Vancouver, 3,000 miles to the extreme west, and Victoria on Vancouver Island; south to Seattle, San Francisco; Yosemite National Park; Los Angeles, through the Southern Californian Desert, winding among desolation and cactus to Las Vegas, truly described always as fabulous (a gambling city in the desert, open 24 hours a day, 365 days a year, shops, everything!), then through part of the Arizona Desert to Grand Canyon. What a contrast between Las Vegas and Grand Canyon! Briefly, the Canyon is one of the world's most magnificent sights. It is 217 miles long, 4 to 14 miles wide and a mile deep; the rims are 7,500 ft. and 8,500 ft. above sea level. Colours and contours seem to be constantly changing and it is too vast and varied to take it all in. One-thousandth part of it would be worth a journey to see; the whole is splendour itself. The Grand Canyon is the only place in the world where the five 'chapters' into which geologists divide the earth's formation can be seen together.

Still eastwards to Chicago and up to Ottawa and Montreal, then down the great St. Lawrence River past Quebec, a trip, by train and coach, of about 8,000 miles (not including the 6,000 miles sea voyage).

Shack Towns

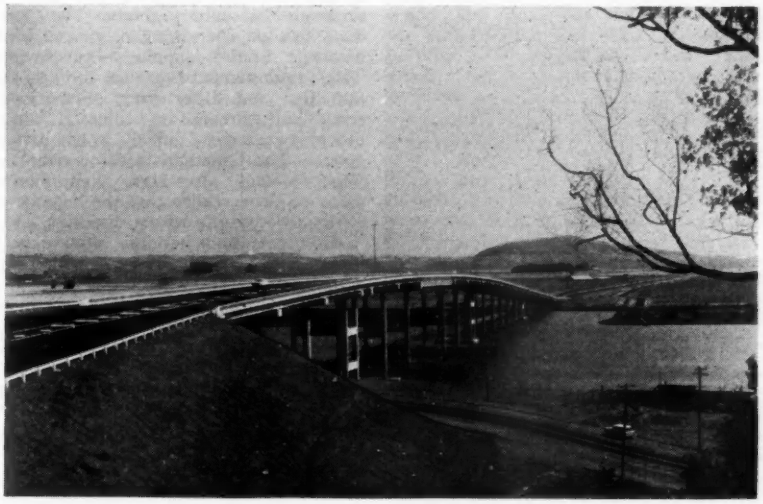
What is it like, this Canada? Prairies, mountains, great rivers and lakes, forests and swamps. Vast natural resources of many kinds; extremes of climate; large areas quite barren while others produce fruit and wine. It is impressive to see a grain train of up to 225 cars, each 44 ft. long adding up to more than 1¼ miles long, hauled by several huge diesel-electric locos!

The large towns are much like any town, but the smaller, country towns are mostly shack-like—a main street of two-storey shops and offices, surrounded by wooden-framed bungalows huddled together on very little space. There are no pretty towns, such as we know in England, except Quebec.

The North American small town rarely looks as if there is any town planning, except for the rectangular layout. Most prominent are the petrol stations, used car 'lots' and parking lots. At night the streets are a blaze of neon signs, but by day these signs are a horrible disfigurement. Just on the outskirts will be an enormous single-storey Supermarket, with a vast parking space attached. There are motels and eating places galore. The scene everywhere is dominated by the automobile; only by personal experience is it possible to appreciate what this means. The large American cars are simply everywhere, in numbers which make the towns seem almost composed of cars. I could not have imagined the result of nearly everybody owning a car, for we only see so many in a few places on special occasions.

In conversation with an Englishman who has lived in Canada 30 years, I spoke of what I called shack towns, and commented on the almost total absence of beauty or picturesqueness. His reply was an agreement with me; 'but,' he said, 'give us a thousand years.' That is the answer to criticism; it is not fair to expect a new country to look like an old one.

Canada is growing fast—very fast. The population is now 18 million or so, an increase during the last ten years of about 20 per cent. Considering that Canada is larger than the USA and that the population of the latter is 160 million, one can easily appreciate the growth and development potential. Canada is still very young—in more than years.



The Petaluma Creek Bridge, California (photographs by Department of Public Works, Division of Highways, California)

More Building

Last year the value of building work done in Canada was the equivalent of $500 (about £180) per head of the population. This year it will be more. An important Government official told me that they are planning to deal with what he termed an explosion in the population. The number of schools and hospitals is to be doubled, and there will be more airports and other public buildings. More houses too, but even in Canada they have reached the point where encroachment on agricultural land must be minimised; so there will be more flats and maisonettes. (There are campaigns against this policy, pressing for more house ownership as an antidote to Communism. Cynics say that this is backed by real estate agents, or lawyers—who get a fee of 5 per cent.) Evidence of the policy of upward building of houses can already be seen on the outskirts of many of the large towns; and some of the smaller towns have recently built blocks of maisonettes which look much better than the wood-frame bungalows.

Commercial development in the cities, such as Toronto, follows a similar historical pattern as in British cities, obsolete small buildings being demolished to be replaced by something better and higher, sometimes whole blocks. Steel frames are nearly always used for buildings such as office blocks, in order to save site labour, which is so costly. Although the steel

* The area of UK is 93,053 sq. miles; the area of Canada is over 3½m. sq. miles.

has to be cased in concrete, that system is nearly always cheaper than reinforced concrete.

Precast concrete is not used to the extent it is in Britain, where it is now common to erect 15 to 20 storey frames by this system. The Canadians seem to regard it merely as a cold-weather system.

Canadian and American city streets are a blaze of light all night, every shop having neon signs, and tall buildings are usually totally lit, or the room lighting may form a chequered pattern. Some buildings are surmounted by a tower of coloured light. Cinemas and many other buildings are lit to an almost dazzling intensity.

It can be seen that many of the buildings are designed with night display well in mind, with lettering, trade marks, or ornamentation pleasing by day or night; much more attention to this aspect of design and advertising of British buildings is worth consideration.

Contractors' Suppliers

Competition for contracts is very severe indeed and prices very keen. A Government official, who is in touch with building and building contractors all over Canada, expressed the opinion that it is practically impossible for a British contractor to operate successfully in Canada, because pricing is so fine and there are so many factors needing deep and extensive local knowledge. It is widely known that several have already tried, and badly failed and withdrawn.

I know of only two large firms of British contractors operating in Canada, but probably most of their work is roads and bridges, and I suspect that their main remunerative business is development. An architect in Toronto spoke well of a British contractor who had built one of his jobs. He considered the British are well up-to-date, but that it is essential to bring enough experienced people to mix with the locals on the site. During the whole of my tour I saw only one British contractor's name-board.

There seems to be no scope for UK suppliers of building materials, such as rain-water or sanitary goods. The Canadians can get everything they need from domestic or US suppliers—mostly the latter; their standards are the same as the Canadian and differ from ours. Even screw bolt threads are different, which makes it even more difficult to use British goods. The Canadians are too near the USA to look elsewhere, even though many of them realize that the balance of payments is in the wrong direction.

Architects and builders have experienced difficulties in the past with some British suppliers, who could not give reliable service or keep adequate stocks.

Architectural firms seem to operate with about six unqualified assistants working under a qualified leader. There is scope for architectural assistants, but they should be under 30, and must be flexible-minded enough to forget quite a lot of their British training. They must be prepared to do things the Canadian way, and never say, 'This is how we do it in England.' (I consider that life in Canada is different in so many ways from life in Britain, that few people under 30 could really happily settle there.)

Building Laws and Codes

Canada has an organisation which I was told is unique, whereby every important element in the building trade meets regularly as a sort of Builders' Parliament. This is the Canadian Constructors' Association and comprises all building contractors, sub-contractors and suppliers of any importance. The Director of the Division of Building Research, R. F. Legget, is represented on their Education and Research Committee.

They are received by the Prime Minister or Cabinet to discuss building affairs on a national level, and to suggest legislation. It is by no means a trade association or union of the usual type, but a nationally responsible body of very high standing. The annual dinner is a formal affair, and is sometimes honoured by the presence of the PM, but in any case a Cabinet Minister.

The National Building Code is an advisory document only, for use by municipalities and provincial governments throughout Canada. It has no legal status until it is adopted by these bodies, under the Municipal Acts; six of the ten Provinces have done so.

It must be appreciated that, in devising the code, consideration had to be given to factors of climate, etc., which vary very much more than we have to cope with in Britain. It is very appropriate that responsibility for the code is entrusted to the Building Research Division of the National Research Council of Canada, a somewhat similar body to our own.

There is very valuable and cordial liaison between these various authorities, associations and committees, as well as regular discussions with their opposite numbers in other dominions. The reports of some of these bodies might be of interest to readers of 'The Builder,' who will be glad to supply addresses.

It is interesting to wonder what Canada will be like after another 1,000 years of growth. I should like to be there to see!

E. G. B.

Cypress Avenue Overhead at Oakland, California

Soil-Cement Economies

Savings in Lagos Road

THE ENGINEERS responsible for designing the Western-avenue, Lagos, considered that it was too costly to transport crushed stone and gravels from 60 miles away to form the flexible base of the road.

A soils investigation, carried out as part of the preparatory work for the project, revealed that it should be possible and economical to stabilise the local soils with small percentages of cement to form a pavement. This method was adopted, and a saving of between £15,000 and £20,000 for the 2.7 miles road was made.

MR. CHARLES M. JOHNSTON, partner, Scott & Wilson, Kirkpatrick & Partners (Nigeria) presented a paper on the Western-avenue, Lagos, at the Institution of Civil Engineers in London on October 31.

He said that the actual pavement design adopted was: 6-in. thick sub-base of sandy clay stabilised with 5 per cent cement, covered by a 6-in. thick base of equal proportions of sandy clay and lagoon sand stabilised with 7½ per cent cement. The sandy clay was typical of the subgrade soils of the area and was won from a borrow area beside the road. Surfacing consisted of a 1.25-in. thick premix carpet using a heavy grade cut-back bitumen. Cycle tracks consisted of a 4-in. thick pavement utilising the sub-base mix with a surface dressing.

Plastic Locking Discs for Concrete Units

New Swedish Method of Joining Without Mortar or Glue

WHEN the Swedish cellular lightweight concrete company—International Ytong Co. AB—began experiments a few years ago with a completely new method of joining lightweight concrete elements without mortar, glue or nails, it was obvious that if successful this development would mean a simplification of building with lightweight concrete blocks. The solution was found in a method employing 'lock-joined' Ytong stave units, i.e. Ytong blocks of standard dimensions equipped with milled grooves in the upper and lower joining surfaces and fixed in place with locking discs fitted into these grooves. This company has now come so far in the development of this method that they were recently able to begin quantity production with specially constructed precision machines. All future production of Ytong stave units will be of this type under the name of lock-units.

The units are made from Ytong which is produced from quick-lime and siliceous materials. The raw materials vary in different countries and can, for example, be burnt shale, sand, sandstone, fly-ash or blast furnace slag. In the production process, the raw materials are ground to a fine granular powder and mixed with water and aluminium powder to form a thick sludge. The mixture is then poured into steel moulds and begins to rise. The aluminium powder acts as leavening agent, i.e., it builds small bubbles in the mass in the same way that baking powder does in a bread dough. When the mass has risen it has a 'cheese-like' consistency and is cut into the desired shapes.

The final phase of the production cycle is the steam-curing of the elements in autoclaves at about 10 atmospheres for 15-20 hours. The material hardens and obtains its high compressive strength. The steam-curing takes place in autoclaves up to 150 ft. long. During the hardening process a chemical reaction takes place so that the final result is Ytong—a homogeneous chemical product mainly consisting of calcium silicate-hydrates.

Precision Dimensional Accuracy

The use of lock units is the final link in a chain of developments which began at the end of the 1920s. At that time traditional masonry techniques dominated in the construction of lightweight concrete walls. It was not until thirty years later that the time was ripe for the method of using Ytong stave units with glued joints—a method that already required precision dimensional accuracy. The new method with Ytong lock units pre-supposes exact dimensions and angles. These requirements are now guaranteed by specially constructed precision machines.

A ¼ in. wide and ⅜ in. deep, centrally longitudinal groove is milled in the upper and lower joining surfaces of the stave units. In the assembly process, round lock-discs of polystyrene plastic, the same thickness as the groove and of 1½ in. diameter, are placed in the groove. The discs are placed over every vertical joint and when they take hold in both the overlying and underlying grooves the position of the stave units is fixed laterally. A few light blows with a hammer and the joints are fixed completely tight. Frames are fixed with pointed plates of aluminum and similar plates are used when connecting lightweight walls to loadbearing walls. The corners of the partition walls are reinforced with corner plates and the corner is locked with an extra plastic disc fixed in a transverse groove. It is important that the first course be laid absolutely horizontal so as to avoid adjustments during the remainder of the assembly process. The first course can be set down on a well smoothed out bedding or in cement mortar.

Static Method of Operations

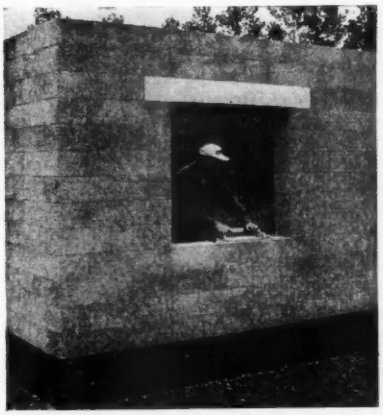
The static method of operations found in the lock-joined walls involves some unusually interesting problems. Since the stave units are mainly held together by frictional force in the contact surfaces, the wall lacks tensile strength vertically. The physical and deformation properties for the horizontal forces depend upon the wall's vertical thrust load. The wall's compressive strength with central loading generally corresponds to that of a wall constructed from glued stave units. Thus the joining material has no effect on the wall's tensile strength.

This seems to be a general phenomenon for walls of cellular concrete since the compressive strength of masonry walls is also practically unaffected by the mortar's physical properties within normal limits. On the other hand, the formation of the joint has a noticeable effect on the wall's coefficient of elasticity with short time loading. The coefficient of elasticity of a lock-unit wall is about half that of a glued wall. The functioning of a lock-unit wall with eccentric loading is an interesting subject and currently the object of additional research.

The even surfaces and lack of mortar joints gives the wall better thermal insulation than a corresponding wall of masonry blocks. The practical thermal conductivity coefficient U-value of a 10 in. thick, lock-unit wall with a density of 32 lb. per cu. ft. is 1.35. With a density of 26 lb. per cu. ft., the coefficient would be 1.20 Btu/sq. ft./h./°F./in.

The normal dimensions of the stave units are: length, 30 in.; height, 8 in.; and width (wall thickness), 8, 10 and 12 in. For partition walls the stave units are of the same length and have a construction height of 10 in. and a wall thickness of 4 in. Normal stave units are produced in all three density and average compressive strengths. Staves with a construction height of 4 in. are available for levelling purposes. The stave

Corner stave units can be locked into place by using plastic discs in a transverse groove, the assembly being carried out in units



Standardised windows, doors and other joinery units fit exactly

A new milling and grooving machine gives the stave units their precision dimensional accuracy

lintols spanning over window and door openings also have a construction height of 8 in. and are produced in lengths of 3 ft. 3 in. to 10 ft.

Up to now all technical results have been very good and there is nothing to indicate any unexpected or complicated problems. Assembly is carried out quickly and the lack of mortar and glue makes it possible to use this method even in the cold of winter. The design requirements can be considerably simplified due to the ready adaptation of the Ytong stave units to the building module. The lack of tensile strength for vertical stress normally does not cause any problem for a loaded wall. On the other hand, with a partition or similar wall the stabilisation problem must be considered. Here, the longitudinal grooves provide a means of reinforcing the walls in a simple way. In individual, bungalow-type homes without an attic floor, the roof can be anchored with vertical tie-rods which are concealed in the wall and anchored in the floor below. It is only necessary to anchor the gable trusses in this way since the entire roof construction with trusses and panelling is treated as a static unit.

In addition to the six factories in Sweden, Ytong is now being manufactured in 16 plants located in 10 countries, including Norway, Germany, Canada, Israel, Belgium, Spain and England. In many countries Ytong is produced under licence, but a few directly-owned factories are also found outside Sweden. Recently, a great deal of interest in Ytong has been shown from new areas including South America and the Far East.

International Ytong Company's new central laboratory, outside Örebro, in Middle Sweden, is now in operation. It features, among other things, a test hall of more than 5,000 sq. ft. for investigations requiring more space. All overseas factories, including both licensee and Swedish-owned plants, are in direct contact through International Ytong Co. AB with the Swedish organisation whose new central laboratory is responsible for investigations and control work as well as basic and applied research in the cellular lightweight concrete field.

Combined Water Tower and Chimney at Belfast

FREDERICK GIBBERD, CBE, FRIBA, *architect*

FELIX J. SAMUELY AND PARTNERS, *consulting engineers*

STEWART AND PARTNERS LTD., *contractors*

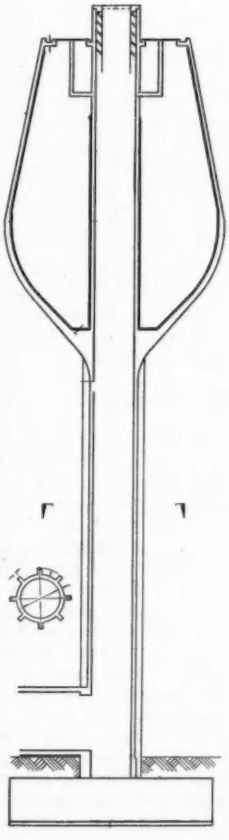
AN INTERESTING STRUCTURE in reinforced concrete has recently been completed at Belfast as part of the construction of the new Ulster Hospital, Dundonald. The designers have combined the high chimney and the elevated external water tank into one structure, and, by adopting a new shape for the tank, have formed these two utility services into a single vertical feature. The structure is 107 ft. high and the tank, which has a capacity of 100,000 gal., is constructed in a wine-glass, or tulip, shape. The hollow supporting stem continues up through the centre of the tank and contains the chimney flue which discharges above the roof level.

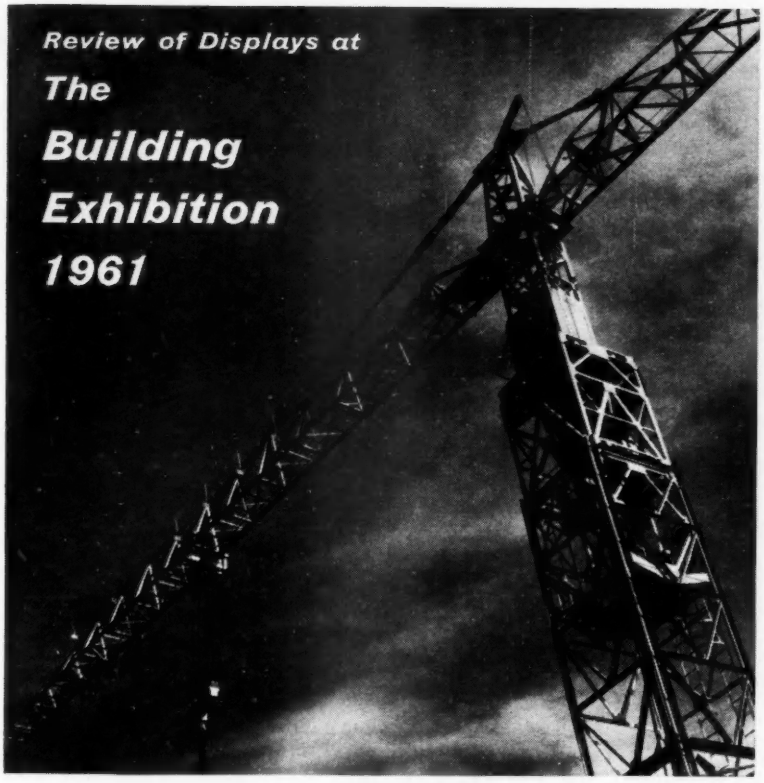
The whole structure is of reinforced concrete, with the flue lining in 'Fosalsil' firebrick. The external surface of the tank has a smooth concrete finish, the radial and horizontal lines of the shaped formwork panels being visible. The stem is circular, 7 ft. in diameter, with eight vertical fins or flutings. The plain, smooth surface of the large bowl, together with the thin fluted shaft, gives a contrasting result, accentuated by the vertical shadows and planes of shade of the fins.

A circular walkway of aluminium rings the tank at its maximum diameter, supported on concrete beams cantilevered from the tank. This is an open grille floor made of radial bars and has a light handrail. Access to the walkway from the ground and from the walkway to the tank roof is by ladders, also of aluminium, made up as lattice box beams.

The tulip-shaped tank is 51 ft. high, with a maximum external diameter of 33 ft. The wall varies in thickness from 13½ in. to 6 in. and is reinforced with ¾ in. circumferential bars on both faces and ⅜ in. radial bars. The stem below the tank level is a 6 in. thick annular section with 1 in. vertical bars. The eight vertical fins are 8 in. wide projecting 12 in. and are incorporated in the structural design of the shaft. The whole structure is founded on an octagonal base 30 ft. wide and 6½ ft. thick. The concrete mix design is 1 : 1½ : 3, and the water tank is designed in accordance with the Code of Practice for water-retaining structures. Tension in the concrete has been limited to 175 lb. per sq. in. under the worst conditions. The modular ratio is 12.

The water tank is lined with asphalt on the inside to provide a waterproof membrane and smaller chambers are incorporated inside the tank at the top. The entry to the flue of the chimney is by a horizontal shaft at ground level. Although the shape adopted presents some obvious constructional problems, the designers, faced with the disposition of two high and normally solely utilitarian structures, have used considerable ingenuity in the solution. The supporting on a single column of a large capacity tank with a big surface area at this height shows a bold use of reinforced concrete.





Photograph by courtesy of Wates Ltd.

Below is the second of our reviews of the Building Exhibition, which was opened at Olympia on November 15 by Dr. Charles Hill, MP, Minister of Housing and Local Government. The hours of admission are: Mondays, Wednesdays and Saturdays 10-6, Tuesdays, Thursdays and Fridays 10-8. The exhibition closes on November 29.

1 STRUCTURAL & METALWORK

BEECHAM BUILDINGS LTD., Shipston-on-Stour, Warwickshire. (Stand 131.)

This company is exhibiting for the first time. Its stand consists of photographs, drawings and models showing various types of buildings designed in the Beecham specialised system of r.c. construction. In addition to actual production buildings, there are examples of office buildings, laboratories, warehouses and store buildings. A church at Bristol, for which the system was specially selected, is of much interest. The exhibits have been chosen to illustrate flexibility of planning which can be achieved by enabling units from standard moulds to be incorporated in any architectural scheme—single, double or multi-storey.

BOULTON SCAFFOLDING LTD., Booth-st., Birmingham 21. (Stand 788.)

The new range of Boulton scaffold fittings shown are made from high grade steel and therefore, being light in weight, become an important consideration in these days of increasing transport and freight charges. A fitting which has appeared on the market since the 1959 exhibition is the spigot coupler, used for connecting both scaffold tube and scaffold frames. This consists of an internal heavy duty tubular spigot and an external ribbed pressure plate, clamped by a single bolt which simultaneously acts as a central location. The pressure plate, being longer than the spigot, forms an automatic tube register for ease of erection. Of particular note are the Boulton stair tread coupler and the new parallel coupler. The stair tread coupler can provide an inexpensive, permanent or temporary stairway (e.g. fire escapes) when used in conjunction with chequered plate. The new parallel coupler has been designed for the rapid assembly of two or more standard scaffold tubes in multiple column, or horizontal formation and permits extra fittings for bracings to be attached.

BRITISH ROPES LTD., Fountain-house, Fenchurch-st., London, EC3. (Stand 354/355.)

The Hammersmith Flyover forms the main feature of the stand. The company's prestressing strand has been used in all the pre-stressed concrete beam segments and cantilever units which carry the roadway of the flyover, each combination of beam segment and cantilever unit being pre-stressed with four groups of sixteen strands, the diameter of each strand being 1½ in. Altogether there are about 223 tons (33 miles) of prestressing strand in the flyover. The display on the stand is arranged under the headings:

(*continued on page* 944)

Exhibition Diary

November 17—2.0 pm :
NFBTE : RECEPTION. Empire Restaurant.

November 18—10.15 am—4.45 pm :
CONFERENCE : Craft Training and Technical Skill in a Developing Economy. Conference Room.

November 20—10.15 am—4.30 pm :
CONFERENCE : Technical Information ; Its Design and its Dissemination. Conference Room.

November 20—3.30—5.30 pm :
LMBA RECEPTION. Empire Rendezvous.

NOVEMBER 21—3.30—6.30 pm :
CONFERENCE : Organised by the London Building Productivity Committee : Cranes for the small contract. Conference Room.

November 21—4.0 pm :
INSTITUTE OF BUILDERS : RECEPTION. Empire Rendezvous.

November 22 :
ABS Lunch and Meeting.

November 23—10.30 am—4.0 pm :
CONFERENCE : Architectural Design for the Disabled. Conference Room.

November 24—10.15 am—5.0 pm :
CONFERENCE : Working Drawings in the Building Industry, organised by RIBA in conjunction with BUILDING EXHIBITION. Conference Room.

November 25 :
GUILD OF BRICKLAYERS : Meeting. Empire Restaurant.

November 26 :
WORSHIPFUL COMPANY OF TYLERS AND BRICKLAYERS—private lunch and tour of Exhibition.

November 28—5.0—7.15 pm :
MINISTRY OF WORKS CONFERENCE : Design for Mechanisation. Conference Room.

November 29—2.30 pm :
APPRENTICES : Prize-giving ceremony—Mr. Peter Trench. Conference Room.

The Conferences

A NEW FEATURE of the Exhibition will be a series of conferences (full details of which were given in 'The Builder' last week, p. 884). Six in number, they are: (1) Craft training and technical skills in a developing economy—November 18; (2) Technical information, its design and dissemination—November 20; (3) Cranes for the smaller contract—November 21; (4) Architectural design for the disabled—November 23; (5) Working drawings in the building industry—November 24; and (6) Design for mechanisation.

This last conference should be of special interest, for it will deal largely with the place which prefabrication should have in an expanding constructional programme. It will be chaired by Sir Thomas Bennett, wartime Director of Temporary Housing, and speakers will include Mr. G. Grenfell Baines, Mr. E. J. Cook, Mr. Bruce Martin and Mr. O. J. Masterman.

Tickets for conference (1), (2), (4) and (5) from Mrs. D. Craig, 11 Manchester-square, W1; for conference (3) from the London Building Productivity Committee, 47 Bedford-square, WC1, and conference (6) from the Ministry of Works, Lambeth Bridge House, SE1.

problems, materials, specification, production, testing, delivery and installation, and the story is told in pictures and text from the traffic block at the Hammersmith roundabout, through the stage at which pre-stressed concrete was approved as the method of construction to the delivery of the strand on the site and the installation. A model of the flyover is also on view.

THE BRITISH XYLONITE GROUP, Higham Station-ave., Chingford, London, E14. (Stand 891/892.)

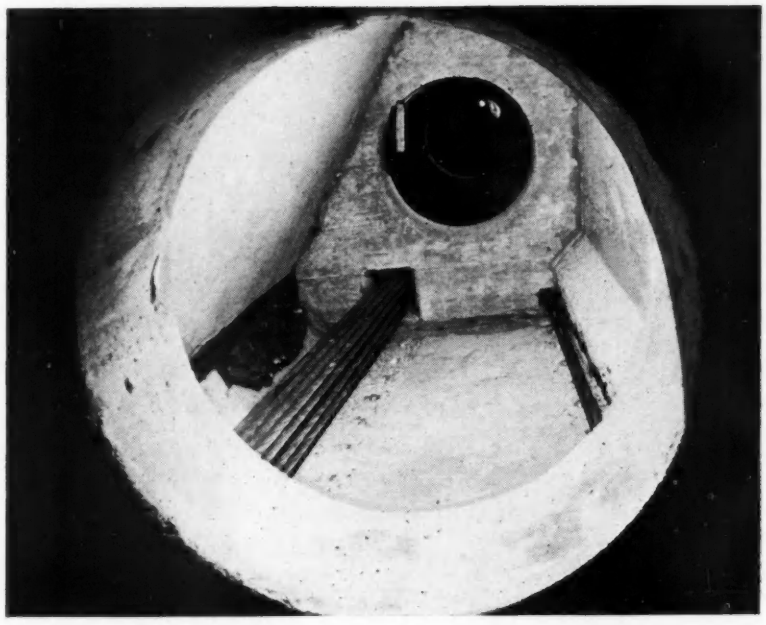
Bexthene, Velbex, Polyzote, Onazote and Cobex are some of the brand names of plastics specially developed for the building industry which are shown by the company. Five companies in the group, BX Plastics Ltd., Cascelloid of Leicester, Expanded Plastics Ltd., Expanded Rubber Co. Ltd. and Extrudex Ltd., are exhibiting on the stand. An experimental demountable building, constructed largely of plastics protected steel and plastics filled or coated panelling, is featured. It was designed by C. W. Glover & Ptnrs. The company has published a 16-page booklet, 'Plastic in Modern Building,' listing plastic materials and many of their applications. This is available at the exhibition.

BROCKHOUSE STEEL STRUCTURES LTD., Hanover-sq., London, W1. (Stand 154/5.)

This stand takes the form of a complete three-storey building assembled from standard prefabricated steel components as used under the Consortium of Local Authorities Special Programme of Building. It demonstrates the various minor but important refinements made to the system, especially to the steel work, and shows the considerable degree of simplification in assembly which has been achieved whilst widening the flexibility of the method as a design medium for architects. Visitors will be able to see extracts from a colour film of the Milan Triennale and also a colour film entitled 'On Schedule,' shown at this year's IUA Congress.

JOHN LYNN & CO. LTD., Sunderland. (Stand 720.)

Williamsform high tensile steel rod ties are the main feature of the stand. Many manufacturers are said to be making extensive use of the ties which in some instances are included as standardised equipment. The ties give increased efficiency, speed construction and cut costs. The outer units of the ties, Walter bolts, may be used many times instead of being immediately expended.



The roadway of the Hammersmith Flyover in London is carried on prestressed concrete beam segments alternating with 12 in. thick transverse cantilever units. The photograph shows how the prestressing strands, supplied by British Ropes Ltd., are located inside a beam segment

SPENCER WIRE CO. LTD., Wakefield, Yorks. (Stand 979/980.)

Mesh, manufactured by the company, is featured on its stand in the National Hall Gallery. Made from hard-drawn high-tensile steel wire in accordance with BS Specifications, it is a reliable reinforcement for concrete in roads and buildings. Shelving, racks, screens and guards, safety guards in factories, decorative purposes in shops and homes, are some of the uses for smaller sizes of Spencer mesh.

2 CLADDING MATERIALS & ROOFINGS

ABBEY TILE CO. LTD., London-rd., Barking, Essex. (Stand 1255.)

This company is featuring a selection from their wide range of imported glazed and unglazed ceramic mosaics. There are a variety of attractive colours and many of the patterns are being exhibited for the first time. These mosaics are ideal for walls and floors and, being impervious to frost, are of particular interest for external cladding.

D. ANDERSON & SON LTD., Stretford, Manchester. (Stand 195.)

The stand is a two-storey construction designed by John Bruckland, ARIBA. The main exhibit on the ground floor displays aluminium trough decking for spans up to 12 ft. Positive top fixing by hammer drive screws provides good anchorage and clean lines of purlins. Interior appearance is good and a number of decorative finishes are available. Gypsum concrete roof construction, first introduced in 1957, is also displayed. High fire-proof qualities combine with high speed laying—up to 1,000 sq. yd. per day under ideal conditions—and a pleasing flat soffit appearance. This roof has been awarded a four-hour fire rating by the Fire Research Organisation. The ground floor ceiling demonstrates in situ the attractive soffits of steel 'D' decking with pvc coating, and aluminium 'E' decking; the butterfly ceiling over the first floor shows aluminium 'E' decking and Andek.

BIP REINFORCED PRODUCTS LTD., Streetly Works, Sutton Coldfield, Warks. (Stand 959/960.)

New 6 oz. Filon translucent sheeting is featured on the stand which is roofed with a 32 ft. continuous length of Ascot profile made especially for the Queen Elizabeth II grandstand at Ascot. This demonstrates the ease with which the sheeting can be produced in very long lengths. To demonstrate the resistance to fire there is a three-dimensional model of part of the molecular structure of the resin polymer which shows that the self-extinguishing part is built into the resin itself and is not introduced at a later stage. It is in this way that the sheet is given permanent protection.

WILLIAM BRIGGS & SONS LTD., Vauxhall-grove London, SW8. (Stand 145/146.)

This stand is designed to demonstrate the light weight and adaptability of 'Bitumetal' roof decks. Flat and pitched roof canopies are cantilevered between two vertical side units, with the minimum of support. Two new products are displayed for the first time —'Colorclad' decking and 'Copper Foil' roofing. 'Colorclad' is a steel deck with a pvc coating on the underside, giving a coloured ceiling to match the internal colour scheme of the building. A wide range of colours and finishes are available. 'Copper Foil' roofing is a bitumen roofing with a copper foil finish, laid in a decorative tile pattern, with the appearance of a copper roof.

HOLLOWAY METAL ROOFS LTD., 44-46 Queensland-rd., London, N7. (Stand 863.)

The exhibit is devoted to copper, zinc and aluminium roofing, together with representative components such as cramps, wall ties and expansion jointing. The stand itself incorporates two offices, the walls of which are of mock stone and polished pine strips. The fascia is constructed of corrugated illuminated plastic, with cutout letters.

HUNTER DOUGLAS LTD., 33 Sloane-st., London, SW1. (Stand 132.)

The Luxaflex system of aluminium building components for use in modern architectural design is introduced here. It can be utilised for infill panels, façade cladding, ventilation louvres, roofing, curtain walling and suspended ceilings. The main component of the system is formed from spring-tempered aluminium strips, the final profile having a width of 3 5-16 in., and weighing .6 lb. per sq. ft. The strip is chemically pre-treated followed by a prime coat and stove enamel finish for final baking under high temperature, giving a finish of good durability. The main advantages of the building component

are its lightness in weight, ease of erection, availability in unlimited lengths, inbuilt ventilation feature and ease of maintenance. A wide range of colours is available.

E. & E. KAYE LTD., Ponders End, Enfield, Middlesex. (Stand 974.)

The latest developments in aluminium extrusions are shown including prefabricated systems for curtain walling and wall claddings. Specially designed profiles and hollows to form light, strong and attractive systems of partitioning are displayed as well as examples of the recently introduced high strength welding alloy, Durcilium 'N.' This alloy allows freedom in design and improves structural strength.

LANGLEY LONDON LTD., 163-5-7 Borough High-st., London, SE1. (Stand 211/2 and 1300.)

The stand has been designed to show off the range of ceramic products marketed by the company. The roof slopes show some of the sixty different models and colours in the company's range of clay roofing tiles, the dominant feature being a gable roof. One side shows bluish green glazed interlocking pantiles whilst the other is tiled with a blend of brown glazed and black glazed CDN tiles, which demonstrates the possibilities of the less spectacular colours of glazed clay roofing tiles. A different material, recently introduced to the UK, is a bitumen roofing faced with high purity aluminium or copper which is patterned to allow thermal movement. It has the advantage of being reinforced strongly with woven glass embedded into the bitumen. This combination of well-tried materials is mainly used for protection of roofs of low pitch or those which are curved or irregular in shape. It is used also for flashings, gutter linings, and for protection of parapet tops and pipe runs. It is particularly useful when roof maintenance problems are involved. A wide range of floor, wall and cill tiles can also be seen.

REDLAND TILES LTD., Reigate, Surrey. (Stand 186.)

The stand has been designed to incorporate extensive displays showing the wide range of roofing tile patterns now available in many colours, cladding tiles, Kentstone paving, walling and garden products, and Rymway rainwater goods. The materials displayed illustrate the expansion of the range of products manufactured by the company.

RUBBER IMPROVEMENT LTD., Rilex Works, Wellingborough, Northants. (Stand 925/927.)

Among other things this company is showing Rilite, a long-lasting and serviceable roofing material which gives free daylight in industrial as well as domestic premises. It is manufactured in an extensive range of corrugations and profiles to match all common asbestos and corrugated iron sheeting.

THE STONE FIRMS LTD., Abbey Yard, Bath. (Stand 202.)

This exhibit tells something about the advanced techniques in all aspects of stone masonry production, supply and fixing which have recently taken place. Among the new developments shown is a full size section of the Thinwall system (Portland Stone used as permanent formwork), storey-high stone-faced concrete panels and machine textured stone slabs, and a new approach to stone cladding currently being developed. The latest 'Wren' fireplace designed by John and Sylvia Reid can also be seen.

SUSSEX AND DORKING UNITED BRICK COS. LTD., Graylands, Horsham, Sussex. (Stand 207.)

The exhibit consists of a range of eighty different types of facing brick, which have been fabricated and are set in two tall angular towers supporting an upstairs office enclosed by solar screens. Two shorter angle display fittings contain exhibits of glazed brick and moulded ceramic tiles. The flooring consists of various types of brick paving and flooring flags made within the Redland Group, which can be used together to form mixed patterns of brick and concrete paving for pedestrian areas.

3 SURFACE TREATMENTS & WATERPROOFERS

BB CHEMICAL CO., Leicester. (Stand 165/166.)

This stand has been designed with particular emphasis on the products used in Coventry Cathedral. One of these is a special glazing mastic used to bed the stained glass windows. A section of curtain walling on one side of the stand demonstrates the use of 'Bostikol' sealants. Other products shown include the 'Noxallac' façade and clear finish treatments, and various adhesives.

CEMENTEX (UK) CO., Orpington, Kent. (Stand 1307.)

New resin-based compounds for restoring cracks and spalls in concrete structures are being shown. These products are based on the liquid resin known as epoxy. When a hardener is added, this material sets at normal temperatures to a tough and durable plastic. The addition of other resins produces a plastic alloy with outstanding properties. It has a high degree of adhesion to concrete, plaster, brick, glass, stucco, tile, stone and wood and even to some asphalts and plastics. Another important feature is that these alloys contain no evaporants and therefore retain their total bulk on hardening.

EVODE LTD., Stafford. (Stand 339.)

Products exhibited include cement and concrete waterproofers, ceiling compounds for curtain walling and glazing joints. A jointless industrial flooring, 'Evokote' floor topping, which is abrasive resistant, is displayed for the first time. Other materials shown include a built-up roof waterproofing system and a cold applied bitumen membrane for horizontal damp-proofing of concrete rafts and basements. Methods of bonding acoustic tiles to ceilings, laminating plastics or flexible pvc materials to walls are demonstrated.

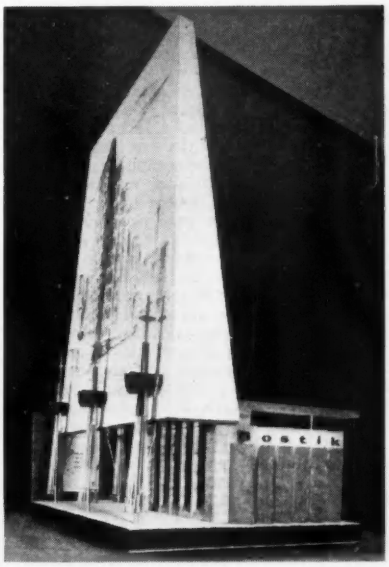
HICKSON'S TIMBER IMPREGNATION CO. (GB) LTD., 8 Buckingham Palace-gardens, London, SW1. (Stand 226.)

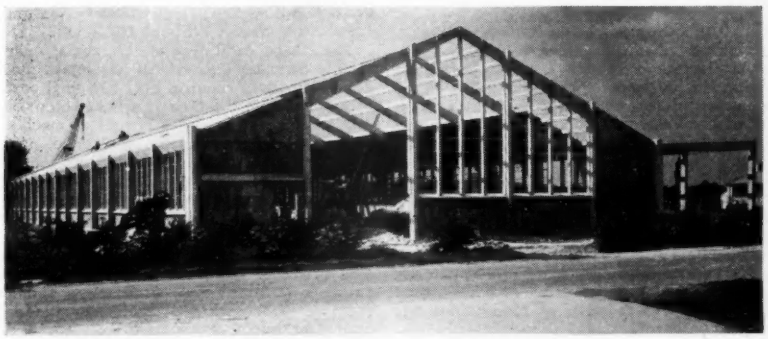
A water-borne fixed preservative which protects against decay and insects, and a treatment for flame and insect proofing, both of which are applied by vacuum-pressure impregnation are demonstrated. 'Pyretos Dribord,' a wood-fibre insulation board, pressure impregnated with a combined flame and moisture repelling agent, is also shown. The stand is constructed of protected wood.

THE LIMMER & TRINIDAD GROUP OF COMPANIES, Vauxhall Bridge-road, London, SW1. (Stand 214.)

Items which are featured include mastic asphalt for roofing, flooring, damp-proof coursing and tanking together with a wide range of industrial and decorative floor finishes. Two new items featured are 'Trinasco' plastic roofing which is a sprayed lightweight roof covering—also expected to have many other uses in building construction, and 'Trinasco' resin flooring, a specification recently developed for the flooring of premises where the spillage of animal fats and mineral oil occurs.

Right: *The stand of BB Chemical Co., which stands 40 ft. high, was influenced by work done on Coventry Cathedral*
Below: *A typical industrial building of 80 ft. clear span of Beecham Buildings Ltd.* (see page 943)





PLASTICS AND RESINS LTD., Wolverhampton. (Stand 1257.)

This company, which is exhibiting for the first time, is introducing a decorative and anti-corrosive plastics coating called 'Pallidux.' It is resin based and with the addition of a catalyst produces a hard, durable finish. Supplied in paste form in several pastel shades and in white, it can be applied by spray gun, paint brush or roller. It can be used on insulation board, cork, glasswool, timber and metal, and insulates against electricity and heat. Also on show is the 'Polaplex' roofing compound and 'Terrazite' industrial and decorative flooring.

PYROK LTD., 401 Montrose-avenue, Slough, Bucks. (Stand 176.)

This stand is dominated by a column of coloured 'Pyrok' cylinders emphasising the flexibility of this material and the colour which can be obtained. On display for the first time is a new surface treatment and a photo-mural exhibition of many contracts carried out in this country and abroad.

RENTOKIL GROUP LTD., 16 Dover-street, London, W1. (Stand 801/802.)

Structural timbers infected by woodworm and wood-rotting fungi are exhibited. Technical advice is supplied on how to recognise various timber destructing forces. Methods of treating timber for woodworm with Rentokil woodworm killer are illustrated together with Rentokil dry rot fluid and wood preservative. Methods of application and coverages of the fluids are given.

SMITH & WALTON LTD., Haltwhistle, Northumberland. (Stand 1136/8.)

A display shows the latest ranges of Hadrian paints and Ashley wallpapers, with examples of their applications. Hadrian 'Rapid' paint is specially featured. Hadrian eggshell (steamproof) finish, primers, varnishes and Synflat emulsion paint are all exhibited, together with a collection of Ashley wallpapers which includes many hand-blocked designs.

STEDALL & CO. LTD., 192-204 Pentonville-road, London, N1. (Stand 1144.)

Products displayed cover the 'Rust-oleum' range of protective coatings. The basic foundation for stopping rust is 'Rust-oleum' 769 damp-proof red primer containing a fish oil vehicle which penetrates the rust and drives out the moisture. The 'Rust-oleum' primers for new bare metal consist of X60 red bare metal primer, 960 zinc chromate primer or 678 quick drying red primer which give a rust inhibitive base ready to receive a top coat. 'Rust-oleum' top coat colours produce the protective finish. Other products include galvinoleum coatings for protecting galvanised metal or aluminium surfaces and 769 damp-proof red primer for wire fencing.

4 — DOORS, WINDOWS & TIMBER PRODUCTS

AUG. STENMAN AB, Eskilstuna, Sweden. (Stand 1301.)

This company is featuring a range of doors and frames, interior as well as exterior, the doors being fitted with locks and hinges. Also shown is a wide range of ASSA cylinder and lever locks, the former being manufactured with 7-pin cylinders which allow more than 2m. theoretical combinations. They are thus suitable for large master key security systems. This company have introduced a new security unit consisting of code-controlled electrical locks. To complement ASSA locks a large display of handles and accessories is shown.

BEVES AND CO (JOINERY) LTD., Kingston Wharf, Shoreham-by-Sea. (Stand 943.)

The principal products on display include the 'Roto' and 'HA' window.

The 'Roto' window is of unusual design giving a simply operated 2-way opening, bottom hung inward and side hung inward. It is friction-stayed in the first position and can be locked in that operation to give complete safety with maximum ventilation. It is available single or double glazed or with double sash, both in hard and soft wood. The 'HA' window follows the general pattern of quality made windows and is purpose made to requirements in hard or soft wood. The opening lights are fully reversible-hung on adjustable friction controlled pivot hinges and fitted with a concealed five-point perimeter edge locking device. It is operated by a polished anodised aluminium lever handle with white plastic knob. Types 'B' and 'E' are fitted with safety locks to restrict opening as determined. All opening lights are prepared for installation of integral venetian blinds as and when required.

BOLTON GATE CO. LTD., Turton-st., Bolton, Lancs. (Stand 138.)

'Wonderfold,' a new lightweight partition, is shown for the first time at this exhibition. Finished in five shades of washable leathercloth, this partition has been designed for domestic use to serve as a replacement for conventional hinged doors, as a room divider and for cloakrooms, wardrobes and cupboards. The unit folds in accordian style, running on nylon pulleys along a pressed steel top track. The patent Bolton mechanism ensures an even fold in opening or closing and there is little danger of rusting or clogging. In the open position, a rubber strip on the end leaf is received by a grooved steel channel in the door jamb to provide a seal which enhances the unit's draught resistant qualities. When bunched, a standard 2 ft. 6 in. by 6 ft. 6 in. partition occupies only 6 in. of space. 'Wonderfold' is also available in special sizes up to 8 ft. by 8 ft. Another new product is a ray-controlled automatic operator device fitted to an armourplate glass door of the type used in shops and restaurants. The device is suitable for hinged and sliding doors within a wide range of sizes and weights and may be actuated on both sides of the entrance by a number of methods including a photo-electric cell and pressure mats.

BOULTON AND PAUL LTD., Riverside Works, Norwich, Norfolk. (Stand 240.)

A selection of standard joinery is shown which includes casement and pivot hung windows, doors and door frames, kitchen fittings and staircases. New features include a louvre window, which has adjustable glass louvre blades; the 'Aluh' window, a wood frame faced externally with anodised aluminium which is entirely new to this country; and a casement stay and fastener of new design. 'Bondenn' brickwork reinforcement is also on display. The resistance of brickwork to load is greatly increased by the use of this material, which is particularly suited to areas where strength of foundations has to be considered.

COBURN ENGINEERS LTD., Coburn Works, Peasmarsh, Guildford, Surrey. (Stand 904.)

This company is exhibiting in conjunction with A. E. DUFFELL & SONS, sliding door manufacturers and erectors. On view is a recently-introduced 'Solo' gear, which is silent in operation and easily fitted. It is suitable for interior doors up to 3 ft. wide and a maximum weight of 100 lb. 'Over-the-Top' garage door is also prominently featured. Coburn introduced their '200' gear for this purpose—a safety device is fitted to prevent the door falling through any failure due to misuse. Interesting, too, is a 'Cubbard' sliding gear, for cupboards, cabinets, showcases, wardrobes, etc. There are two types—'M,' employing a bottom roller morticed into the bottom of the door (invisible from both sides of the door); and 'F,' employing a bottom roller fitted flush with the rear face of the floor (invisible from the front of the door).

THE CRITTALL MANUFACTURING CO. LTD., Braintree, Essex. (Stand 190/191.)

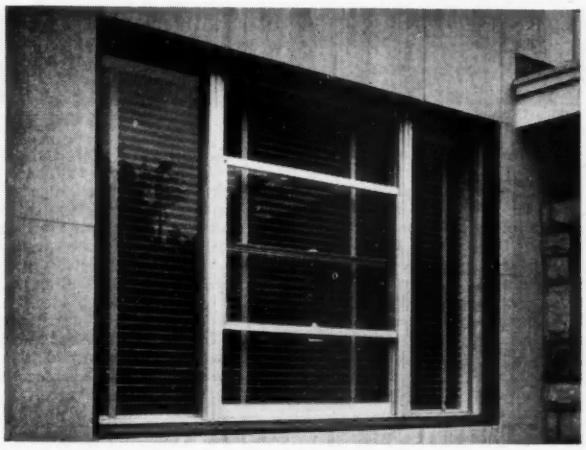
The latest addition to the range of Crittall windows for multi-storey buildings is shown. The 'Cambridge' window, which can reach from floor to ceiling, consists of three sections in a modern, neat aluminium frame. The top light is fixed, the centre section consists of a sash which can be lowered the full depth of the window for easy cleaning and the lower section is hinged at the bottom and opens inwards. The window is easy to clean, provides the maximum ventilation with complete safety for children, and glass can be replaced from inside the room. The latest reversible window is horizontally centre-hung but has trimmer lines, a stronger hinge and a neat and unobtrusive dual purpose catch which limits the initial opening to 5 in. from the vertical. As a safety measure the catch and the central handle of the casement must be operated at the same time before the window can be reversed through 180 degrees for cleaning or maintenance.

THOMAS CROMPTON AND SONS LTD., Ashton-in-Makerfield, Lancashire. (Stand 844.)

To help solve the problems involved in the opening and shutting of horizontally-pivoted windows this manufacturer of locks, hinges and builders' ironmongery has produced in time for this exhibition a new hinge and fittings. One problem was to provide a real engineering product which would last a lifetime without maintenance. The other, how to protect the increasing number of flat dwellers with this type of window from the constant anxiety of children being able to open them and climb or fall out and yet give facilities for easy adjustment for ventilation purposes and complete reversal for easy cleaning. Other new products shown include an adjustable friction pivot hinge; a pivot hinge with a safety stop device; two casement fasteners; and a safety retaining stay.

CROSBY & CO. LTD., Lion Works, West-st., Farnham, Surrey. (Stand 107.)

This year's exhibition is the official debut for the company's Primaseal hardboard flush door. This door requires only two final coats of paint (one in the case of a light colour) to produce a good finish—a benefit of machine coating with scientifically controlled paint thickness. Also making its first appearance will be a door out of the range of plastic faced doors which the company are introducing to meet the demand for plastic surfaces of high durability especially suitable for hospitals, laboratories, offices. Besides these new products there are some specimens of Crosby's standard door production, and an example of the work of their non-standard door department.



Left: *Laboratory furniture supplied by Cygnet Joinery for the Engineering department at London University.* Right: *An aluminium double hung sash window, manufactured by John Thompson Beacon Windows Ltd.*

CYGNET JOINERY LTD., Higher Swan-lane, Bolton. (Stand 1003/1004.)

Featured by this company is a display of high quality laboratory furniture. A recent innovation is the introduction of 'T' type units which give a flush finish to the elevation of all underbench units. This 'T' range is one of standard units, based on the company's 'S' type range but having a more modern styling. Main features include doors and drawers with recessed finger pulls, no projecting handles and moulded styles on carcase framing. Fume cupboards have been designed to allow for maximum all round visibility.

DURAFLEX HOUSECRAFTS LTD., Union Works, Carpenter-st., Charles-st., Manchester 1. (Stand 1142/1143.)

Shown here are 'Duraflex' thresholds and door-sealing systems. In the former flexible vinyl plastic is arched in a sturdy aluminium base to provide 'spring action' against the bottom of the door, thus providing a tight, effective seal. Vinyl strips along the bottom of the threshold prevent water seepage. The 'Vinl-Stop' is a new weatherstripping, combining flexible vinyl for complete sealing, locked in a rigid frame for easy installation, and, when combined with the 'Duraflex' threshold, provides an efficient method of weatherstripping the entire doorway. 'Vinl-Sweep' is a door bottom weatherstripping which has been designed to meet the demand for an economical and practical form of weatherstripping, which gives protection by sealing in heat and air-conditioning.

ELECTRO-HYDRAULICS LTD., Liverpool-road, Warrington. (Stand 292/293.)

This company is demonstrating automatic door operating equipment. The compact equipment, designed by Electro-Hydraulics Ltd., is completely hidden from view when installed. The actuator is situated beneath the door while the pumps and ancillary units may be placed in a cellar or ante-room. The unit may be used to operate many types of door and both left and right hand openings are available. Since the pump unit consumes power only when the door is operated, running costs are the lowest possible. The operating mechanism is normally triggered by a low voltage floor mat switch though other sensing devices such as photo-electric cells can be supplied if required.

GRIFFIN & GEORGE LTD., Ealing-rd., Alperton, Wembley, Middx. (Stand 909.)

For the first time the new Griffin-Grundy all-metal laboratory furniture is shown. It has improved corrosion resistance and completely rigid construction. Doors, catches and other close-mating parts are already assembled in frames so that the final assembly may be carried out by semi-skilled labour easily and quickly. There are no projecting handles on cupboards and doors and instead, a continuous flange offers a finger grip space over the full width of the door and drawer. The drawer tracks are adjusted for alignment by a simple cam in the front of the unit, while a rubber buffer ensures quiet operation. The furniture is made entirely from zinc-coated steel sheet for general use. It may also be made in aluminium or stainless steel without alteration to the design, or in 'Stelvetite.' These alternatives are available because welding of the sheet has been reduced to a minimum.

HOLCON LTD., 21 Mackenzie-street, Slough, Buckinghamshire. (Stand 236.)

The Carda organisation is represented by A.B. Atvidabergs Inredningar, Kungstradgardsgatan 20, Stockholm C, Sweden. The exhibit shows both familiar and new forms of Carda fenestration. In particular the use of a new type of lightweight external aluminium cladding is illustrated. This type of construction lends itself particularly to structures where curtain walls giving a high degree of thermal and sound insulation are required. It is at present being used in Scandinavia and will shortly be available in this country.

HENRY HOPE AND SONS LTD., Smethwick, Birmingham. (Stand 184/185.)

On this stand, designed by Mr. Kenneth Grange, FSIA, the display includes 'Polyclad' patent glazing, an example of sidewall glazing, two storeys high, constructed in Hope's new plastic-covered patent glazing. The exhibit includes two small and one large opening light, all constructed in plastic-covered steel; the former controlled by alternative examples of Hope's cable controlled gear with torsion bars, and the latter by electric co-axial gear. Also shown are aluminium sunbreakers in aerofoil profile, vertically pivoted and operated by electrically controlled gearing; the 'Austral' window, constructed in aluminium weatherstripped sections; and a patented vertically sliding window, double glazed for heat and sound insulation. It has an anodised finish.

JAYANBEE JOINERY LTD., Uxbridge, Middlesex. (Stand 824/825.)

This company is displaying its range of standard products in windows, flush doors and kitchen units. New products include the 'Paragon 100' range of kitchen units, a series of well-designed kitchen cabinets with natural beech framework, beech door pulls, magnetic door catches and many other improvements; the 'Kitchette,' a new version of an original design prepared with the help of the Ministry of Housing and Local Government for single living room accommodation, old people's flats, bachelor quarters etc., where space is limited; and the 'Paragon Prolaca' hardboard faced flush door, which has a specially treated hardboard surface requiring only two coats of paint to achieve an excellent finish.

JOHN THOMPSON BEACON WINDOWS CO. LTD., Wolverhampton. (Stand 248/249.)

Features on this stand include a Beacon standard inside glazed window which is particularly suitable for multi-storey buildings. It is a steel window which can be cleaned and maintained from the inside, obviating the necessity for outside ladder work. The window is protected by the Thompson zinc wire metallisation process, which ensures meticulous cleaning and preparation, rust proofing by zinc coating after complete frame assembly, and final sealing by zinc chromate priming and stoving. The feature of this process is the application of the priming coat being effected at the factory where its quality and workmanship is properly controlled and supervised. Also shown are pressed metal door-frames and a Beacon aluminium glide window. The latter has complete weather protection provided by metal-backed mohair weather stripping, accommodated in grooves of the specially designed frame extrusion. No putty or mastic is required for installation because the windows are factory glazed with vinyl extrusions.

TOMO TRADING CO. LTD., Packet Boat Dock Cowley Peachey, Uxbridge, Middlesex. (Stand 279.)

Featured on this stand is a demonstration of the effectiveness of double glazed windows of the coupled sash type compared with single glazing for the thermal insulation of buildings. Purpose-made coupled sash windows, similar to those in use throughout Scandinavia, are displayed in a variety of styles. Double glazed picture windows are also on show. These horizontal-pivot-hung windows in softwood are ready primed for fixing. Tomo double glazed doors may also be seen and there is a display of door and window hardware of Swedish design. Displayed this year for the first time are Tomo Venetian blinds which can be used between the panes of double glazed windows or as freehanging blinds to single glazing.

5 — BUILDING BOARDS, CEILINGS, INSULATION

ALLAN BLUNN LTD., 29 Craven-st., London, WC2. (Stand 263.)

This company is exhibiting galt-glass fibre reinforced products in the form of corrugated roof lights, dome lights and decorative sheeting. Galt-glass is manufactured from glass fibres bonded with polyester resins to give a tough, resilient lightweight material. The decorative sheeting lends itself to unusual treatments both for interior and exterior decoration. At Olympia, examples of the special corrugated profile and flat sheets with a reeded or stippled surface in translucent and solid colours are being shown.

APPLIED ACOUSTICS LTD., 76 Wimpole-st., London, W1. (Stand 969.)

This company is featuring Micropor acoustic panels which permit quite a wide range of decorative treatments. These panels consist of a micro-porous membrane mounted on special board. No holes are visible and dust and dirt are not attracted. The membranes are factory treated with a special coloured acoustic lacquer which preserves their acoustic properties, and as the lacquered membranes show, gives a stippled, stone surface finish. Because of their degree of sound absorption and freedom from dust the panels are frequently specified for hospital interiors.

ARBORITE CO. (UK) LTD., Bilton House, Uxbridge-rd., London, W5. (Stand 1005.)

This company, who is exhibiting for the first time, is displaying a wide selection of its decorative laminates. One of the most interesting sections of the stand itself shows examples of Arborite wall surfacing. One method is to attach a laminate covered panel by a hook fitment on to battens covered with a matching or contrasting Arborite pattern. This method of panelling is particularly useful when it is necessary to cover, with speed and simplicity, uneven wall surfaces of bad plaster or brickwork. Also included in this section is the new 'texture' finish introduced earlier this year. The effect of this finish in woodgrains is that it brings the natural feel of graining to the surface of the laminate.

BAKELITE LTD., 12-18 Grosvenor-gdns., SW1. (Stand 139.)

Among the plastics products on display here are Warerite decorative laminates, including wallboard which is now being used for wall-cladding in place of plastering. The surfaces retain their colour for years without needing redecoration. The wallboard and veneers are particularly suitable for built-in furniture and fittings. Phenolic foam, a recent development, is featured on the stand and visitors have the opportunity of seeing a new film entitled 'Phenolic Foam for Building.' Phenolic foam is a thermal insulation material of outstanding fire retardant properties. It has been used successfully for roof insulation, in office partitioning and as a core material for reinforced plastics buildings.

BELLROCK GYPSUM INDUSTRIES LTD., 200 Westminster Bridge-road, London, SE1. (Stand 168/169.)

This stand is of particular appeal to visitors interested in plaster and plaster products. The latest addition to the company's range of plaster building materials is Bellrock plasterboard made at a modern plant adjacent to a rich gypsum deposit in Nottinghamshire. Bellrock plasterboard is made to BS 1230 in plain and insulating form and incorporates wallboard, baseboard and lath. A complete range of White Heather high quality plasters is displayed, showing the application of multi-purpose plaster to various backings on walls and ceilings as well as plasters specially prepared for a particular industry including, surgical, dental, ceramic and paint grades. The Bellrock building panels are also included in the display. These plaster load-bearing units form ideal partitions and walls in all kinds of buildings where fire-resistance and thermal insulation are of importance.

CELOTEX LTD., North Circular-road, London, NW10. (Stand 238/239.)

Of the range of ceiling products that is exhibited, in addition to the standard type of insulating boards, bevelled panels can be seen in a variety of thicknesses and sizes and in three finishes. The panels permit dry construction to give crack-free modern ceilings plus thermal insulation. The latest product of this type is the Designer ceiling tile, a 12 in. sq. unit with tongued and grooved edges which conceal the fixing staples or nails. The tile has a white finish and a softly embossed surface. Among the acoustical products is a new Acousti-Celotex tile called 'Extra,' produced in three patterns. These tiles have a factory-applied super-white finish and are made with tough sugar cane fibres. When these fibres are felted and interwoven during manufacture a mass of dead air cells are formed, providing an absorbent material ideal for sound insulation purposes.

CORDAR LTD., Dean-street, Newcastle-upon-Tyne. (Stand 803.)

A wide range of single and double skin insulated roof lights is being shown which are designed to give a 'U' value of .42. They are available in clear, opal, amber and various other shades of Perspex. Their light transmission is 92 per cent for clear, 80 per cent for opal and they do not lose their elasticity or go yellow with age. Double skin roof lights offer considerable advantages in insulation, the layer of still air trapped between inner and outer skins providing a barrier against both inward and outward flow of heat. Hermetic sealing ensures absolute insulation and reduces risk of condensation. Lights are fitted with sealed, watertight screw fixings leaving no exposed metal.

DENNY, MOTT & DICKSON LTD., Adelaide House, King William-st., London, EC4. (Stand 944.)

Several new products are being shown by this company. 'Panawall' is a three-ply timber panelling, resin bonded, on which the face side comprises a series of random width hardwood veneers, machine grooved at each joint to give a true random width appearance. The veneers are selected for beauty and for clear, random grain character, and are cut lengthwise from the logs. A new form of construction, known as Kewlox, is also on show. This dispenses with fixatives of any kind to obtain rigid joints. The invention is British. and was awarded a Gold Medal at the 1961 International Inventors Exhibition in Brussels on its first public showing. The principles employed are a combination of telescopic, angular and interlocking actions, with compensating stress and strain. The method is remarkably simple in operation and serves equally well for enclosed or framed structures. As no joints are fixed, all parts fit together and can be taken apart again at will. The complete structure is, however, very rigid. The basic element is an angled section having flanges on both webs. The stand is constructed of Kewlox and illustrates the various methods described. A number of new boards and timbers can also be seen.

GETALIT LTD., Harts-lane, Barking, Essex. (Stand 954.)

The feature of this stand is the wide selection of patterns and colours in the standard range of 'Getalit' laminated plastic. Besides the large number of plain colours, some very realistic marble effects have been produced. Wood grain effects are also a speciality of this company and a new 'natural' finish is being exhibited for the first time. Also new is 'Glowmat' striped surface which incorporates alternately glossy and matt stripes within one sheet.

HALL-THERMOTANK LTD., Regina House, 1-5 Queen-st., London, EC4. (Stand 401.)

This composite exhibit has been designed by Design and Industrial Styling Company Ltd. to display some of the products of companies in the Hall-Thermotank Group. The ceiling on the stand is a new type recently introduced by Lumenated Ceilings Ltd. and is known as the 'Hallmark.' The standard modules are constructed of tensioned pvc film and are supported on a lightweight, galvanised rolled steel framework. The ceiling becomes, in effect, the light source and illumination is diffused evenly over the whole area without glare or high spots. The 'Hallmark' ceiling is particularly suitable for industrial and commercial applications where good lighting and clean conditions are essential. The stand also incorporates a sound resistant window manufactured by Sound Control Ltd.; a model escalator illustrating this type of equipment which is manufactured by J. & E. Hall Ltd.; and various patterns of ventilation louvres and diffusers manufactured by Thermotank Ltd.

ISORA ILLUMINATING CEILINGS LTD., Bedford-avenue, Slough, Bucks. (Stand 349.)

A new luminous ceiling, a development of an existing suspended ceiling, is being shown of which the most important feature lies in the translucent panels. These now consist of two layers of very thin but extremely tough non-sag pvc mounted onto a light ms frame and separated by a still air space of approximately 1 in. The film used is in the 'self extinguishing' fire category and has been approved by numerous authorities, including the LCC. The significance of the new panel is twofold: first, the old problem of visible dirt accumulation above luminous ceiling panels is virtually eliminated; second, studies show that the new ceiling can effect heat savings of up to 70 per cent. Another feature of the panel is the method by which the pvc is secured. This is retained on the supporting frame by means of small U-shaped perimeter beading which locks the pvc firmly and permanently in position and at the same time protects the translucent film from accidental abrasion at its edges. Light transmission through the double panel may easily be calculated, for practical purposes, by multiplying together the individual transmission factors of the individual films.

NEWALLS INSULATION CO. LTD., Washington, Co. Durham. (Stand 151/152.)

A new glass fibre mat, known as 'Interclad,' can be used as insulation for all types of roof and side cladding systems. For ease of estimating requirements the material, in various sizes and thicknesses, is packed to give coverage units of 100 sq. ft. as laid. The

glass fibres are bonded with thermo setting resin to form a tough but light and pliable mat. This is rot-proof, odourless and non-hygroscopic.

TRUE FLUE LTD., Convector House, Acacia-rd., London, NW8. (Stand 112/113.)

The stand is in the form of an information and design centre. Technical representatives are available and some interesting scale models are displayed. Among these is a model of the company's domestic external flues which demonstrates the adaptability of its precast sectional flues (5 in. and 7 in. internal diameters). These have been primarily designed for use on existing property. They are well insulated, efficient in operation and are cheaper to erect than the traditional brick stack. In addition there are SE-Duct gas flues. Drawings, photographs and a model are displayed illustrating this system of gas flues which has been developed by the Gas Council for incorporation into multi-storey dwellings. Sealed combustion gas appliances may be connected to one internal duct, thus obviating individual flues, resulting in a considerable saving in space and erection costs. Flue linings, flue blocks and refuse chutes are also being shown.

WALLINGTON WESTON & CO. LTD., Frome, Somerset. (Stand 911.)

As well as exhibiting surfacing materials such as Marleybord and Marlica, three new developments are shown. One is a system of shuttering moulds for casting concrete; being made of vinyl, the moulds are re-usable indefinitely. The second is a partition walling material—sheets of Marleybord with a honeycombed infilling. Finally there is Fromobord, chipboard which is laminated with Marleybord on one face, and hardboard on the reverse.

tors, in both primer and stove enamel finishes, are also shown. They are now available in eighteen standard sizes, with heating surfaces from 5 to 30 sq. ft. approximately. On show for the first time are new double banking kits for Dimplex pressed steel water radiators. Consisting of couplings and brackets, these kits are easily fitted and enable the user to employ standard panel radiators.

FEDERATED FOUNDRIES LTD., 75 Hawthorn-st., Glasgow. (Stand 425.)

This company is showing two new products. They are the FF rotor-waste, a kitchen waste disposal unit, and the 'Sofono Selecto-Heat,' a combined pump and mixing valve for small bore central heating systems. The main emphasis on this stand is on appliances suitable for full or partial central heating, including the Sofonomatic boiler range and continuous burning open fires which, with the Sofono high duty boiler flue set,

6 HEATING, LIGHTING & VENTILATION

A. BELL AND CO. LTD., Kingsthorpe, Northampton. (Stand 346.)

A selection of fireplaces is displayed on this stand. Of particular interest is the new Bell 'Supaheat 4D' coke fire which is designed for those in smokeless zones. This fire is shown for the first time and contains one unusual innovation, in that the ashcan is in stainless steel. Materials used in the Bell fireplaces include polished and rough-hewn marble, ceramic mosaic, slates, glazed tiles and faience, wrought ironwork, split stone with fossilised marking, and hand-painted ceramics.

BRITISH INSULATED CALLENDER'S CABLES LTD., 21 Bloomsbury-street, London, WC1. (Stand 345.)

The BICC stand emphasises 'Panelec' heating systems and cables together with associated accessories; also wiring and general cables including the use of mineral insulated wiring units as incorporated in multi-storey development. TELCON PLASTICS LTD., a member of the BICC Group, is represented by a display panel showing domestic applications of polythene tubing. One 'Panelec' heating system shown is the rewirable floor warming system which is assembled from standard components utilising lead sheathed or other suitable cables. These cables can be withdrawn and replaced by means of access troughs in the cement screed without disturbance to floor or floor finish. Another is the pvc solid embedded floor warming system which mainly employs pvc sheathed cables spaced and held by patent plastic spacer bars, the whole being covered with cement screed. To detect possible damage to cables during installation a fault monitor has been designed and is also on view. Shown, too, are Butyl rubber insulated NBR compound sheathed heating cables specially developed to withstand the severe site conditions experienced on certain types of installation. They are thus particularly suitable for ramp and road warming systems.

CRANE LTD., 15-16 Red Lion Court, London, EC4. (Stand 420.)

This company's new method of skirting heating by cast-iron panels can be seen. The panels, all of which have a single 'D' shaped waterway, are heated by hot water from a central heating boiler. Since the panels are distributed round the room they give an even temperature with only a slight gradient between the floor and ceiling. They are also particularly adaptable to the mixing valve type of control which allows the temperature of the water in the heating system to be controlled independently of the boiler water temperature. A feature of the system is the unobtrusiveness of the panels, and this can be observed at the exhibition where they are displayed as if installed in part of a room. Also exhibited are a number of boilers, both solid fuel and oil burning, for central heating and indirect hot water supply.

DANFOSS (LONDON) LTD., 13 Queensway, London, W2. (Stand 914.)

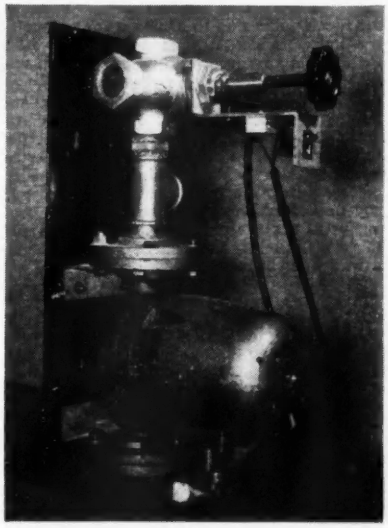
This stand features a range of non-electric thermostatic water valves suitable for the control of central heating systems. These include types suitable for controlling individual radiators and convectors or complete circuits. Also shown is a valve designed to control the temperature of domestic hot water cylinders.

DELMORE ENGINEERING CO. LTD., 51 Gresham-road, Staines, Middlesex. (Stand 430.)

This company is introducing for the first time a displayed range of 'Delmatic' oil-fired boilers incorporating automatic ignition. This is also available as a small bore unit complete with circulating pump and mixing valve. Other examples of recent equipment on view include the 'Delmore' domestic model 40 with standard high/low flame operation and a concealed draught stabiliser. It is available with draught assister fan and has a capacity of 43,000 Btu's/hr. Also shown is a 'Delmore' air heating unit for providing ducted air heating to medium-sized houses; and 'Delmorad' pencil-slim steel panel and column radiators which have a protrusion of only 2 in. from wall surfaces.

DIMPLEX LTD., Millbrook, Southampton. (Stand 348.)

Prominently featured on this stand is a section devoted to the company's technical advisory service. Examples of heating schemes are shown which make use of Dimplex electric heating appliances. Various electric heating appliances for home, commerce and industry are displayed, including permanently oil-filled, thermostatically controlled electric radiators, domestic and commercial infra-red heaters, portable infra-red fires, oil-filled electric towel rails, skirting board styled convector heaters and industrial overhead radiant heaters. Examples from the range of Dimplex pressed steel water radia-



The Selecto-Heat with cover removed

will provide hot water for central heating domestic purposes. The 'Sofono Selecto-Heat' consists of pump, mixing valve and by-pass enclosed in a compact steel casing, which can be sited at the most convenient point, thus keeping installation costs to a minimum. The FF rotor-waste, for fitting to modern sinks with a 3½ in. diameter waste hole, solves the problem of disposing of kitchen waste, which is ground down to small particles by a hard-wearing cutter of a special alloy as it passes through. All rotating parts are balanced, and a thermal cut-out with manual re-set button is incorporated to protect against overloading.

FENTON BYRN AND CO. LTD., Armfield-close, West Molesey, Surrey. (Stand 309.)

On this stand is exhibited a wide range of ring-mounted and diaphragm-mounted ventilating fans and ancillary equipment. These fans in diameters ranging from 6 in. to 36 in. are available in all speeds and voltages for single and three-phase supply. All models can be specially adapted or modified to suit individual applications. On show too, both in metal and fibre glass, are Fenton Byrn's patent roof exhaust units fitted with automatic gravity operated shutters. In addition there are items from a wide range of fan-assisted warm air units, a selection of ancillary equipment and the 'Airflow' plastic window ventilator.

W. AND J. LAWLEY LTD., Britannia Works, Sams-lane, West Bromwich. (Stand 972/3.)

One of the many features on this stand is this company's range of approved overnight burning fires which are ideally suited for smoke-controlled zones. The fires include the 'Duo-Tone,' '100 Britannia Mark II,' the 'Tudor II' and the 'Vista III.' Also on display are convector fires, fire baskets, and frets, together with a full range of black plastic and thermoplastic cisterns in a varied range of colours.

LINCOLN FURNACES LTD., Oxted Mill, Oxted, Surrey. (Stand 906/907.)

A representative range of oil- and gas-fired units, ducting and other ancillary equipment, for warm-air central heating are displayed on this stand. The standard 'EP50' (50,000 Btu) furnace, suitable for the average small home of 1,000 to 1,200 sq. ft. floor area, is shown with more powerful pressure-jet oil-burning furnaces. One of these has an output of 870,000 Btu per hour and is suitable for heating areas up to 25,000 sq. ft. Lincoln gas-fired furnaces, now modified for use in Britain and approved by the Gas Council, are a special feature of the display. The gas furnaces, in high-boy, low-boy and counter-flow styles, have outputs from 48,000 to 100,000 Btu. The company's new electric unit, providing a ducted warm-air central heating system which is ideal for flats and offices, has port openings in three directions, any one of which can be used as a connecting point for the ductwork. To save space, this 35,000 Btu model can be fitted high on a wall or in a cupboard.

CHARLES PORTWAY AND SON LTD., Halstead, Essex. (Stand 439.)

This company is showing for the first time its new range of domestic oil-fired boilers. Five models are displayed, providing outputs of 12,000 to 60,000 Btu per hour. Small enough to fit all kitchens, they are silent, smokeless, odourless and automatically controlled. The Portway 465 is equipped with electric ignition and a wall flame burner which provides automatic operation of both boiler and burner. This ensures no wasteful idling of flame or fuel. The other models can be fitted with electric ignition as an extra.

RANGE BOILERS LTD., Stalybridge, Cheshire. (Stand 447/8.)

On this stand is displayed a range of hot water storage vessels in copper, including the patented 'primatic' indirect cylinder, and the several patterns of the 'Fortic' combination tanks. The 'Primatic' is the special feature. A model in perspex is shown which clearly demonstrates the working principle and the unusual feature of the accommodation within the cylinder of the expansion volume on the primary water. An actual 'Primatic' in cut-away section is also on view.

S. SMITH AND SONS (ENGLAND) LTD., Witney, Oxfordshire. (Stand 403.)

Shown for the first time at this exhibition is the Smith's model 40 domestic oil-fired boiler which is similar in external appearance to the model 30. It has a heat output of 40,000 Btu per hour. This is achieved by employing a fan assisted pot burner used in conjunction with specially designed baffles within the heat exchanger. In addition to all domestic hot water this model is capable of heating a radiator area of 175 sq. ft. Automatic ignition and thermostatic control offer economy of the same degree as the model 30. This boiler is designed to operate on regular grade Kerosene or recommended branded fuels.

7 SERVICES & FITTINGS

ARMITAGE WARE LTD., Armitage, Rugeley, Staffordshire. (Stand 343.)

Armitage Ware shows pieces in ten different colours including the recently introduced orchid and sky blue. Other colours to be seen are cream, blue, light coral, green, grey, primrose, turquoise and fawn. Vitreous china plumbing fixtures are represented mainly by the 'Nuastyle' series 3 patterns. Other exhibits include the new 'Salonex' hairdressers' basin in vitreous china complete with hot tap for pre-heated water with flexible tube and nylon handspray; and the redesigned 'Aqualon' drinking fountain. Washbasins are all fitted with Nuastyle chromium-plated fittings and a variety of mixers and shower assemblies is displayed on a separate panel.

ASSOCIATED ELECTRICAL INDUSTRIES LTD., Crown House, Aldwych, London, WC2. (Stand 356/357.)

Intercommunication aids, electrical equipment and industrial flooring are shown by AEI. Notable among electrical accessories are some recent additions. A combined switch socket outlet/fused spur unit joins the AEI Windsor range of fittings. For flush mounting, it comprises a 13-amp. 3-pin shuttered switch socket outlet and a 13-amp. switched fused spur unit mounted on a moulded front plate. It is available with or without pilot lights. Designed primarily for water heater control, a new range of 20-amp. double-pole AC switches can also be used for floor heating control and comparable functions. They are available for surface or flush mounting, as one or two-gang units, with or without pilot lights.

EDWARD CURRAN ENGINEERING LTD., Cardiff. (Stand 869.)

A comprehensive range of vitreous enamel sinks and architectural panels is displayed on this stand. Seven enamel sinks are shown, including three new models, introduced to the market since the last Building Exhibition. The new designs are the 'Tay,' the 'Cam' and the 'Avon.' The 'Tay' is a double drainer sink top which measures 54 in. by 18 in.; the 'Cam' is a single drainer 36 in. by 18 in. tap hole model sink top with an octagonal shaped bowl; and the 'Avon' a double drainer measuring 63 in. by 21 in. All are available in a choice of white, cream, pale blue and green. Curran are sole UK manufacturers of Seaporclad vitreous enamel on steel infill panels and Seaporcel facing panels. These are available in almost any of the British Standard colours. The exhibit includes many types of panels, colours, insulating cores and a selection of photographs of recent large contracts.

EKCO PLASTICS LTD., Southend, Essex. (Stand 318.)

Plastics toilet seats designed to meet the requirements of all standard size units are displayed in an extensive colour range to match approved sanitaryware colours throughout the world. The 'Belvedere,' for example, features a close-fitting lid which completely encloses the seat, while the 'Jubilee' has a high-grade specification and, like the 'Belvedere' is available in a choice of 16 colours. The inexpensive 'Camelot' is simple to install and is in a choice of seven colours. The recently introduced Ekco 'Supersink' is moulded in polypropylene, the lightest of all plastics, which can withstand temperatures in excess of boiling water. The draining board incorporated in the unit has concealed stiffening ribs, so avoiding the need for the exaggerated draining grooves. Suitable for either right or left-hand mounting, with separately located taps, the 'Supersink' is designed to fit on a cabinet with overall dimensions of 42 in. by 18 in. and with a supporting framework up to 1 in. thick.

ELECTROLUX LTD., 135 Regent-st., London, W1. (Stand 325.)

Featured here is a very wide range of built-in refrigerators. The new M 40 has been designed to meet the increasing demand for a bigger capacity food storage space in compact kitchen layouts. It has 6¾ sq. ft. of shelf area and 4 cu. ft. capacity. There are three shelves, including one with a hinged flap for storing taller bottles, and three door storage shelves with butter and cheese compartments. The enclosed low temperature compartment is equipped with two ice trays (21 oz. of ice cubes) and will take 7 lb. of frozen foods. The cabinet, weight 145 lb.; height 42⅜ in.; width 22¾ in.; and depth 25 in., is available in white with a left- or right-hand door—available for electric operation only.

ENGLISH ROSE KITCHENS LTD., Warwick. (Stand 319.)

Four kitchens are shown by this company. The main display is one of the latest models —English Rose in wood with cupboards and cabinets faced with Arborite, incorporating a built-in cooker and hob plate. Doors and facings are in red pine, one of the Arborite woodgrain finishes. Arborite, originating in Canada, is a decorative laminate with outstanding resistance to wear,heat and staining, which retains its glowing colour indefinitely with the least possible trouble in cleaning. Also on show is an original 'English Rose' design carried out in aluminium.

FINLOCK GUTTERS LTD., Finlock House, Frant-rd., Tunbridge Wells, Kent. (Stand 312.)

As a leading manufacturer of combined precast concrete eaves and gutter units this company has a full range of its products on show. All of these can make an appreciable saving in first costs when compared with traditional methods and have the added advantage of providing a completely maintenance-free eaves and gutter construction. The 'Royston' gutter with artificial stone fascias in various profiles can be inspected in detail. A logical development of the 'Royston' gutter is the recently designed Finlock verge unit with 'Royston' type fascia to replace timber barge boards. It effects a most elegant appearance to gable ends. The Finlock system of combined eaves, gutter and verge unit now enables the complete elimination of all painting and maintenance at these levels.

FORDHAM PRESSINGS LTD., Melbourne Works, Dudley-rd., Wolverhampton. (Stand 1043/1044.)

This manufacturer of flushing cisterns is displaying a complete range of products. This company exhibited the first unbreakable plastic cistern, and the first white plastic cistern, the 'Eterna' low level model at the 1959 exhibition. Since then the 'Volta' high level cistern has been added to the range, this also being constructed of unbreakable rigid polythene. The 'Eterna' is now fitted with an extremely near front lever assembly, and the cistern itself is now available in 2, 2½ and 3 gall. capacity. In addition to black and white, a full range of coloured finishes is available. Both the 'Volta' and

'Eterna' will operate efficiently under the most adverse water conditions, and are the most suitable installation for areas where sea-water is used for flushing. New developments on display at this stand will include a plastic extension to allow flat-bottom cisterns to be fitted where originally well-bottom patterns were fixed. This extension piece will enable the replacement to be effected without disturbing existing supply and overflow fittings.

THE GROVEWOOD CO., Tipton, Staffordshire. (Stand 1056/1057.)

On show for the first time at this stand is the 'Daintymaid' sliding door range This is a complete new range of sliding door sink, base and corner units in both the 21 in. and 18 in. worktop sizes and available in the full range of colours. New also is the 'Daintymaid' de luxe with the new 'Vysheen' finish. This finish is exclusive to this series and involves a technique in which a plastic sheet is vacuum-formed onto the furniture itself so that the finish becomes an integral part of the woodwork to which it is applied. 'Vysheen' is moisture-proof and extremely durable, while the attractive colours have a medium gloss sheen and are completely fast to light. In this range an additional feature is provided with magnetic door catches, while special attention is paid to interiors with plastic lined shelves, doors and drawers.

LACONITE LTD., Walton-on-Thames, Surrey. (Stand 976/977.)

New features on this stand, apart from various 'do-it-yourself' packets, include 'Laconite' pegboard in a range of 12 colours, and what is described as a 'dream bathroom containing features of the future.' According to an official description this futuristic curiosity is fitted with television monitor screens which cover the usual relayed programmes and the front and rear doors. It enables the pampered housewife to interview callers from the bath—one-way vision, of course. The bathroom itself is lined with standard 'Laconite' wall panels of which a varied selection is on view. The 'Laconite' perforated wallboard has the same surface finish as existing decorative wallboards by this company. It is available in the same board sizes (6 ft. by 4 ft.; 8 ft. by 4 ft.; and 2 ft. sq.).

QVF LTD., Duke-st., Fenton, Stoke-on-Trent. (Stand 933/934.)

This company is showing a typical arrangement of glass drainlines and traps, fitted into a laboratory bench. The underbench drainline is connected to 4 in. diameter stack. New methods of fixing traps direct to sinks and a selection of other standard fittings are also exhibited.

STANTON AND STAVELEY SALES LTD., Ilkeston, near Nottingham. (Stand 164.)

For the first time in Great Britain, a 48 in. diameter spun iron pipe is exhibited. Increasing use is being made of specially strengthened spun concrete pipes for the conveyance of cooling water, sewage and drainage. A 30 in. diameter strengthened spun concrete pipe with Stanton-Cornelius flexible joint is included on this stand. Other exhibits include spun iron pipes, fittings and flexible joints for water, gas or sewage mains and for other industrial purposes; cast iron drain pipes and fittings; a prestressed spun concrete lighting column for 25 ft. mounting height; and blast furnace slag for road making, filter beds and other purposes.

TEMPLE TUBES LTD., Temple Mill, Passfield, Hampshire. (Stand 905.)

This stand is devoted mainly to pitch fibre pipes for drainage both above and below ground, with special emphasis on stack drainage. The pipes are available in diameters from 2 in. upwards and are shown with a full range of pitch fibre and plastics fittings. Pipe to 8 in. diameter, the maximum size at present covered by BS 2760:1956, is included. A number of new fittings are introduced. Among these is the new Temple plastics waste pipe connector, which can be fitted from either the inside or the outside of a stack pipe. Examples of telescopic joints for all pipe sizes up to 8 in. are also displayed. The special hand lathe for tapering pipe ends on site is available for demonstration.

VITREFLEX LTD., Dafen, Llanelly, S. Wales. (Stand 342.)

This manufacturer of vitreous enamelled rainwater and soil goods features for the first time some new 'Cleanline' gutters. These present a new development in the generally accepted pattern and erection of standard gutters. With their lipped edges and incorporated fixing brackets, a positively clean appearance is given without the disfigurement of the normal fascia bracket. The fixing brackets are fitted at 2 ft. intervals and are unobtrusive inasmuch as they do not break the clean line of the gutters. The finished product is vitreous enamelled.

8 — PLANT & EQUIPMENT

ARDEN PLANT LTD., Sopers-lane, Poole, Dorset. (Stand 784.)

The recently introduced 'Fourpower' range of concrete mixers, which includes a lightweight 5/3½ diesel mixer, 4/3 electric and 4/3 propane gas operated models, is exhibited. All of these machines are of all-steel construction and have totally enclosed drive and special clutch. A range of powered vehicles is also shown, including a 5/7 cubic feet power barrow, platform truck and power tug. The power unit and drive assembly of all these machines is interchangeable and attachments can be added. All are petrol driven and are available with Villiers, Briggs & Stratton or Clinton 3 hp engines. Mixer trailers, designed for easy loading and towing the 'Arden' mixer, are also displayed. These are fully sprung and can be supplied with various heights of towing hitch.

E. P. BARRUS (CONCESSIONAIRES) LTD., 12-16 Brunel-rd., London, W3. (Stand 616.)

The display on this stand includes chain saws, pipe cutters, cable and bar cutters, welding equipment, woodworking machines, hand saws, and trowels for the plasterer and the bricklayer. Demonstrations of hand and hydraulic pipe-cutting equipment made in USA by H. K. Porter Inc. illustrate the new principle involved. A wheeled chain is slipped round the pipe and tightened, and the resulting concentration of stress causes the pipe to shear cleanly without ragged edges in a few minutes. The latest products in the 'Devcon' range of plastic metals, all introduced during the last year, are also shown.

S. N. BRIDGES & CO. LTD., York-rd., London, SW11. (Stand 781.)

Among the portable electric tools displayed is the new 7¼ in. power saw, fitted with an automatic overload cut-out torque clutch, and patented 'Neonic Safety Eye.' The depth of cut is adjustable from 0 in. to 2⅜ in., with a bevel adjustment from 0°-45°. The spindle speed is 4,500 rpm and the weight 13½ lb. Industrial drills, ranging from ¼ in. to ⅜ in. capacity, all fitted with the 'Neonic Safety Eye' and some with automatic overload cut-outs, are also exhibited.

BRITISH EQUIPMENT CO. LTD., Ixworth-house, Ixworth-place, SW3. (Stand 727.)

This company is exhibiting and demonstrating portable electric tools including a portable electric hand plane and 10 in. portable electric chainsaw. The 'Swifsure' saw is a portable electric circular saw with a 4⅛ in. depth of cut. A wide range of blades and discs is available for cutting wood, bricks, tiles, metals and other materials. Other exhibits include transformers and portable electric generating sets together with the 'Perma-Grit.' This is permanent tungsten-carbide abrasive welded to steel or copper discs or sheets, suitable for sanding or cutting plastic, fibreglass, etc.

A. COOKSLEY & CO. LTD., 21 Tabernacle-st., London, EC2. (Stand 516/517.)

Among the woodworking machines displayed is the Universal Woodworker, UV3, which is designed for a variety of operations including sawing, moulding, surface planing and tenoning. It also has a crosscutting unit, mounted above the sawbench table. The 18 in. Universal pullover crosscut saw is another new machine with a 5¼ in. deep cut and is designed so that it can be sited right back against a wall, with no rear projections. Also displayed is a 12 in. x 9 in. over and under planer, having a two-motor drive and two rates of feed, electrically controlled by a switch. Other machines exhibited include a mortising machine, sanding machines, panel planers, surface planers, and sawbenches.

CORNELLY EQUIPMENT CO. LTD., 39 Victoria-st., London, SW1. (Stand 736 & 747.)

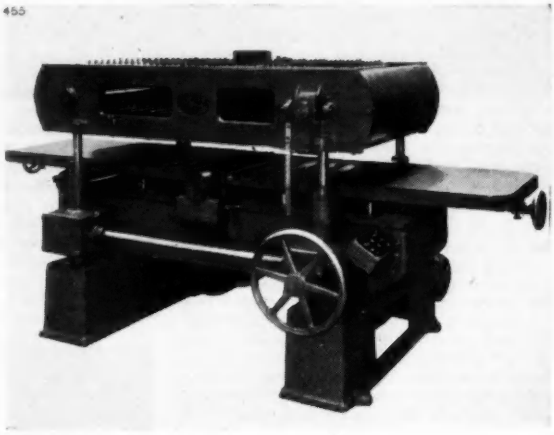
A full size Champion 613D tower crane, erected to a height of over 40 ft., which will lift ½-ton at 40 ft. radius and is suitable for heights up to 81 ft. and total lifts of 16 cwt., is shown on this stand. The American 'Plastermaster' is being demonstrated applying various types of plasters, rendering coats, etc. This machine will pump and apply at heights of up to 200 ft. from the pump. Also exhibited is a new truck mixer the 'Record Whirlflow.' Its main features are lightweight construction, 4 cu. yd. capacity as mixer, 4½ cu. yd. as agitator, hydraulic drive, fast loading and unloading, and a discharge chute 14 ft. high.

ERNEST DOE & SONS LTD., Ulting, Maldon, Essex. (Stand 761/762.)

The Thwaites 'Nimbus' 15 cwt. diesel dumper, featured on this stand has three forward gears with a maximum speed of 12 mph and one reverse gear. The capacity to water level is 16 cu. ft., struck off, 18 cu. ft., and heaped 22 cu. ft. It has a single cylinder air-cooled diesel engine giving 5-6 hp at 1,700 rpm. Also exhibited is the JCB 4 hydraulic excavator with a three purpose bucket-face shovel, back actor and square holer. The Allam range of flexible drive internal vibrators, tampers and compactors is also shown.

DOMINION MACHINERY CO. LTD., Hipperholme, Halifax. (Stand 501 and 505.)

Woodworking machinery displayed includes a 26 in. sawbench with rise and fall spindle and extra large table, a 12 in. x 7 in. surfacer and thicknesser with various improve-



Left: *The new Skil Recipro saw, exhibited by British Equipment Co. Ltd., is designed for the fast cutting of metal.* Right: *a high speed finger-feed surface planing machine exhibited by John Pickles & Son.*

ments, a 16 in. sawbench again with rise and fall spindle and a 14 in. bandsaw, all of which are being shown for the first time. The surfacer and thicknesser has a new type fence, 2 ft. 6 in. long and surfacing tables of 4 ft. 0 in. overall length. A two-speed gearbox giving speeds of 15 and 30 ft. per min. is incorporated and the table rollers can be raised and lowered simultaneously by a handwheel. The 26 in. sawbench has a table giving 2 ft. between saw and fence, a rise and fall spindle and a new fence. It is powered by a 10 hp motor.

HARFORD PUMPS LTD., Harford-house, 7-9 Charlotte-st., London, W1. (Stand 404.)

A new low capacity pump, the HCP 25 (2 gall. per min., against 2.75 ft. frictional head) which was recently added to the range of Opio circulating pumps is exhibited. The other pumps in the range for domestic heating are also shown. A new range of TA radiator valves, which is suitable for use with iron and copper fittings, is exhibited. They are supplied with nut and olive.

THE HYMATIC ENGINEERING CO. LTD., Redditch, Worcs. (Stand 991/992.)

A wide range of 'Hymatic-Hydrovane mobile and portable air compressors is displayed. Electrically-driven 'Hydrovane' compressors are demonstrated in operation, including model 9OE100, which powers four light pneumatic drills or one heavy concrete breaker and is easily movable. Engine-driven portable 'Hydrovane' compressors for general building and contracting work are displayed, including small units suitable for light pneumatic tools and spray painting. The recently introduced redesigned version of the 23P100 compressor which will operate air tools or a battery of spray guns is displayed with a Jap. 55C 8 hp two cylinder four stroke engine. It is an oil-sealed rotary compressor which has a high volumetric efficiency and requires little maintenance. It is vibration free, air cooled and quiet in operation. Other exhibits include mobile compressors which have been specially designed for operation on multi-storey construction work.

INDUSTRIAL PUMPS LTD., 20 Bentinck-rd., Hyson Green, Nottingham. (Stand 993/4.)

The latest Pionjar rock drill and road breaker which is exhibited is of Swedish manufacture. It is petrol driven, and easily handled by one man. Attachments are available for operations ranging from rock drilling to road breaking and clay cutting. The machine is portable and independent of air compressors and other power sources.

INTERNATIONAL HARVESTER CO. OF GREAT BRITAIN, LTD., Harvester-house, 259 City-rd., London, EC1. (Stand 763.)

Among the exhibits on this stand is a 50 hp 1 cu. yd. Drott on which a special 4-in-1 bucket enables the operator to select bulldozer, scraper, clamshell, or regular skid-shovel. Also shown is a diesel wheel tractor with 'Wain-Roy' model B-1 backhoe and International B-40-1 front end loader. It has a differential lock, disc brakes, power steering, heavy-duty clutch, eight forward and two reverse speeds. The 'Wain-Roy' model B-1 has twin lift cylinders with a lifting capacity of 2,500 lbs. A link lever swing system is used and gives a 190° working arc.

W. KENNEDY LTD., Station Works, West Drayton, Middlesex. (Stand 786.)

A range of the company's products for cold bending to precise measurements, angles, bars, pipes, strip, tube, tees, channels and other sections up to 2 in. are being shown. Some samples of the bends which can be obtained, will be shown on the stand. Other equipment exhibited includes bar benders and croppers, both hand and power, for concrete reinforcement up to 2 in. diameter; and the 'Refix' hydraulic pipe bender with a maximum capacity of 3 in. BSP. The 'Kennedy' portable power hacksaws, one with a capacity of 2⅜ in. diameter, and another which cuts up to 3½ in. diameter, are being demonstrated.

LAWLER, AYERS & CO., LTD., Broad-st.-house, London, EC2. (Stand 728.)

The complete range of bending machinery under the 'Laco' trade mark is being exhibited and demonstrated with an emphasis on machinery suitable for bending small bore tubing. The latest is a self-contained unit for bending copper tube or light gauge steel tube from ½ in. to 1½ in. nominal bore diameter. In addition to pipe bending the machine is integrated with a portable hinged tripod stand incorporating a tube vice for screwing work. Models include benders capable of dealing with pipes up to 4 in. nominal bore. Other new equipment to be shown is an automatic bar bending machine for reinforcement rods, this incorporating a combined electronic mechanical system allowing for bends to be pre-determined.

C. D. MONNINGER LTD., St. Anna Works, Overbury-rd., London, N15. (Stand 520/1.)

Exhibits on this company's stand cover a range of woodworking machines and tools. The Tikon tapered section bandsaw makes a relatively narrow cut, since the blade is thinner at the back edge, which means the teeth require practically no set. The range includes 20, 25, 30 and 35 mm. widths. The IMA bandsaw machine on which these blades are demonstrated is the 'Labor 600,' to be exhibited for the first time in this country. A traversing-head board cutter, the 'Monosaw,' Mark 3 model—with tubes of 3½ in. diameter, ¼ in. thick metal—can be equipped with a self-contained dust extractor and hydraulic clamping. Also on the stand is a new German dust extraction unit for use with most makes of overhead router. Extraction is by means of an impeller built into the head of the unit which is either self-contained or can be connected to the central extraction plant.

PETTERS LTD., Staines, Middlesex. (Stand 785.)

This company is showing eight engines from its range of air cooled diesels from 1½ to 108 bhp, together with one 3 bhp air cooled petrol engine. These engines are used for plant such as dumpers, cranes, pumps, hoists, concrete vibrators and mixers. The engines exhibited include a single cylinder air cooled diesel (1.5 to 3 bhp at 1,000 to 1,800 rev/min), a twin cylinder air cooled diesel (6 to 13 bhp at 1,000 to 2,000 rev/min), a single cylinder air cooled diesel (4 to 8.2 bhp at 1,000 to 2,000 rev/min), a high speed single cylinder air cooled diesel (3.25 to 5 bhp at 2,000 to 3,000 rev/min), a four cylinder air cooled diesel (36 to 54 bhp at 1,200 to 1,800 rev/min), and a single cylinder air cooled petrol engine (1.5 to 3 bhp at 750 to 1,500 rev/min).

JOHN PICKLES & SON (ENGINEERS) LTD., Hebden Bridge, Yorks. (Stand 514/5 and 524/5.)

Exhibits on these stands cover the range of woodworking machinery manufactured by this company. A new heavy rotary veneer peeling machine is shown for logs up to 10 ft. 6 in. long by 66 in. diameter, with independent motors for power dogging and power operation of the knife slide. The knife pitch is variable, and the gear boxes give a thickness range from .25 mm up to 5 mm. An electric tenoner is also displayed for timber up to 24 in. by 6 in. and tenons up to 6 in. long. It has five spindles, each with built-in electric motors for tenoning, scribing and crosscutting. There is centralised push button control and the table is fitted with a swivelling fence and stops for repetition working.

THOMAS ROBINSON & SON LTD., Rochdale (Stands 512/3 and 526/7.)

Among the seven new machines displayed is an 8 in. x 4 in. motor driven moulder on which six cutterheads are driven independently from motors mounted on machine frame. It has two spindle speeds of 4,500 and 6,000 rpm without use of frequency changer, twelve feed rates 20 to 158 ft. per minute through six-speed gear-box with two-step vee rope drive, and 8 in. diameter ball bearing reversing feed rollers. Also exhibited is a 12 in. x 8 in. interchangeable chain and chisel mortiser, which will cut mortises up to 1 in. square by chisel and up to 1½ in. wide by chain. It has a push-pull double depth stop, table stops to regulate length of mortise and self-contained chain and hollow chisel grinder.

'SHETACK' TOOL WORKS LTD., Tunstall-rd., London, SW9. (Stand 613.)

Specialist items of interest to plumbers and heating engineers form the main exhibits on this stand. 'Monument' brand mallets, dressers and other wood tools, the 'Shetack' saw, bending springs, drain testing plugs and air testing apparatus, as well as pipe cutters and reseating tools are shown. An adjustable wrench for use by plumbers on different nuts is demonstrated. The display will also include a range of 'Max Sievert' blowlamps and bottle gas blow pipes.

SPOTNAILS LTD., Devonshire-house, Vicarage-crescent, London, SW11. (Stand 603.)

A range of fasteners and guns is featured on this stand among which is the model 'R' air gun replacing the 'MB' type. This gun can be modified to drive staples or pins of varying lengths, although this is most economical if there are only long-term changes. Special guide plates are available to assist in accurate fixing. It is light in weight, being made from magnesium castings. The 'L' type gun, also exhibited, is now available to drive the 16 gauge heavy duty Spotstaples up to 2 in. in length. Mallet drive spotstaples and spotpins are also shown on this stand.

TREND INDUSTRIAL EQUIPMENT LTD., 77 Dudden-hill-lane, London, NW10. (Stand 755.)

The Trend wall chaser exhibited for the first time cuts grooves in walls more quickly than the usual impact hammer or rotary tungsten carbide bladed tool. Slots 1½ in. wide by 1½ in. deep can be formed at 6 ft. to 8 ft. per minute, leaving a finished edge for plastering, and cutting any metal reinforcement. The pair of 9 in. reinforced 'Trend-lastic' cutting discs are powered by a 1900-watt motor, rotating at 6,500 rpm. The depth and width of cut can be adjusted. A water pressure container feeds a variable spray of water through jets located in the top of the guard. A pair of wheels will slot up to 120 ft. run of fletton brick, or 75 ft. run of a harder brick. Although it is not designed for cutting concrete, the same machine with the head removed will resurface concrete, clean off rust or cut metal reinforcements. Other products displayed include a small-bore hammer drill, a belt sander, a dovetailing machine and a plastic trimmer.

A wall chaser for fast cutting

UCAN DEVELOPMENT LTD., Ucan House, Portsmouth-rd., Esher, Surrey. (Stand 604.)

There are three new products on this stand, two of which are 'Hilti' tools. The more powerful one fixes pins and studs up to ¾ in. whit. with varying thread lengths, the second up to ¼ in. whit. An improvement made on the latter reduces routine cleaning to every 7,000 fixings. The third product is a Ucan 'Redhead' self-drilling anchor. This is described as 'a drill which becomes an anchor,' offering maximum pull-out resistance of 19,442 lb. and maximum shear loading of 18,816 lb. and ranges in size from ¼ in. to ⅞ in. whit. Other fixings exhibited cover a variety of uses ranging from skirtings and small grilles to curtain walling and crash barriers.

WILMERLEA LTD., 32-66 High-st., London, E15. (Stand 544/545.)

Six sizes of multi-purpose woodworking machines by Lurem of France are exhibited in addition to the range of Wilmerlea woodworking machinery. The former are capable of working timber from 7⅞ in. x 4 in. to 20½ in. x 9½ in. They will plane, thickness, saw, mortise and tenon, etc. One of the models, the C200, has a total weight of 220 lb. and a 1 hp single or three phase motor.

9— FLOORINGS & PAVING

BULGOMME-SILENCE FLOORING (UK Technical-Sales Organisation), 11 Mount Park-cres., W5. (Stand 1067.)

Plastylon, a top quality grade pvc floor covering with fabric backing, is one of two new products on this stand. The other is Foam-Plastylon, a pvc floor covering with fabric interliner and cellular rubber base. Also on show is the company's main product, Bulgomme-Silence flooring. This flooring absorbs noise, footsteps, heavy traffic vibrations etc. It is extremely hard wearing and, due to the method of manufacture employed, will not lose its shape. Neither will it creep, bubble nor stretch in any way. In addition it is claimed that it is not possible for the wearing surface to become separated from the cellular base, or for the base itself to collapse.

FERODO LTD., Chapel-en-le-Frith, Stockport. (Stand 275.)

A new type of stairtread material designed for outdoor use in all weathers, is seen for the first time. Developed by the company's friction materials research division, the material, which takes the form of a moulded infilling, is available in a single stone colour for all current Ferodo stairtread channel sections. It is oil, moisture, chlorine and acid resistant and will withstand heavy wear. From the maintenance angle, stairtreads containing the material can be hosed down, scrubbed or washed with either soap or soapless detergent.

Other features of the stand include examples of different methods of fixing stairtreads to various types of stair fabric; a selection of treatments for curves and stair-ends and full colour illustrations of notable installations in shops, offices and hospitals and ships.

GRANWOOD FLOORING CO. LTD., Riddings, Derby. (Stand 948.)

Safari, a new wood topped composition block, is being shown for the first time. These floor tiles consist of a cement composition base moulded on to a 2 mm. selected hardwood face. They are lightly sanded after laying to give a smooth finish and finally sealed and polished to bring out the natural beauty of the wood facing. Once they are down there is no subsequent movement. They are also suited to heated floor applications by electricity or other means.

JAMES HALSTEAD LTD., PO Box 3, Crow Oak Works, Whitefield, Manchester. (Stand 218/219.)

Poly-Flor flexible pvc flooring is the basic feature of this company's stand. A new range of true vinyl floor tiles simulating marble and terrazzo is displayed for the first time. Parts of the exhibit show a comprehensive range of Ejecta flooring accessories such as nosing, coving and stairtreads, together with a range of polystyrene wall tiles. The new glass laminate division includes in its display bathroom suites, sink units and new Decracel panels designed to provide a decorative translucent panel suitable for office partitioning, ceiling panels and curtain walling.

'NOELITE' LTD., Borough Green, Kent. (Stand 242.)

An area of the stand is paved with the company's 'Noelite' paving. Many of the sizes and some of the colours in which it is manufactured are used. The non-slip surface is a special feature of Noelite, particularly suitable for the surrounds of schools, hospitals, welfare centres and sports grounds. Various types of dwarf terrace and boundary walls suitable for use on housing schemes are also shown, together with a photographic display of some recent contracts.

OMNIA CONSTRUCTIONS LTD., 25/35 City-rd., London, EC1. (Stand 150.)

This year this company has increased the size of its stand in order to suspend a full-scale Omnia concrete floor. The design of the exhibit allows visitors to examine both floor and soffit from every angle. The floor is a composite structure consisting of reinforced pre-cast planks, mass-produced hollow concrete blocks and in situ concrete. The pre-cast elements are light in weight and provide a permanent shuttering to the structural in situ concrete.

The floor is quick to erect and spans up to 40 ft. without camber or bowing. It provides a flush uninterrupted soffit with no restrictions on free distribution of partitions. Services can be accommodated within the depth of the slab.

10 SPECIAL EXHIBITS

BRITISH RAILWAYS, 222 Marylebone-rd., London, NW1. (Stand 1266.)

British Railways is exhibiting models of a 'Presflo' wagon and a 50-ton bogie brick wagon, whilst photographs and colour transparencies illustrating British Railways services to the building industry are also on display. Representatives are at the inquiry counter to answer visitors' questions about passenger and freight train services, fares, rates and charges.

CANADA—DEPARTMENT OF TRADE AND COMMERCE, Minister (Commercial), 1 Grosvenor-sq., London, W1. (Stand 1037/1040.)

A half-scale model of a two-storey, six-room, timber frame house is the central feature of this stand. The model is half-encircled by a ramp, from which visitors may study all the techniques and materials used in timber frame construction. From foundation to roof, a wide range of typical Canadian construction timbers and decorative woods can be seen. They include Douglas fir, hemlock, spruce, pine, cedar, maple and birch. The ramp railing is of birch and the decorative garden wall of cedar. Step-by-step construction details are explained by diagrams, and examples of Canadian timber frame houses may be seen illustrated in colour.

A full-scale room interior shows several types and finishes of Canadian wood, as well as Canadian wallpaper and acoustical tile. The flooring is of birch strip, and the walls are finished in various types of panelling and planking. A lounge and information centre show herringbone and block designs in birch flooring, as well as varied wall and cabinet finishes.

ELECTRICAL DEVELOPMENT ASSOCIATION, 2 Savoy Hill, London, WC2. (Stand 352/353 and 332/333.)

Displays illustrating the latest techniques in electric underfloor heating installations, ring circuit practice and recent apparatus for built-in kitchens can be seen. One of the points brought out is that every new dwelling should have a really adequate wiring installation with plenty of socket outlets and spare capacity for future aquisitions. Power tools for the building industry are also featured on the stand.

THE FINNISH FOREIGN TRADE ASSOCIATION, Helsinki, Finland. (Stands 1321/1340.)

This is the second time that Finland has participated in the Building Exhibition. The main part of the stand comprises a total area of about 2000 sq. ft. and is occupied by three manufacturers' associations; The Finnish Plywood Development Association, The Wallboard Manufacturers Association and The Finnish Particle Board Association. A group of three wallpaper manufacturers, under the name Finnwallpapers, are exhibiting their latest patterns designed by leading Finnish artists.

Something quite new on the market is the door furniture exhibited by Björkboda Bruks Ab, Oy Excelsior Ab, Ovila Oy and Solifer-Works. It includes various types of handles in metal and metal-wood combinations, new designs in hinges, locks and letterplates. Stand lighting, which includes some modern designs in glass and metal, is provided by Oy Stockmann Ab, Orno Metalworks. A complete prefabricated Finnish Sauna-bath is erected adjoining the joint stand.

FOAMED SLAG PRODUCERS FEDERATION LTD., 206 Gray's Inn-rd., London, WC1. (Stand 878.)

Examples of the many uses of foamed slag are on exhibition, including the latest developments in the field of reinforced lightweight concrete. This is particularly suitable for external wall construction, combining structural strength with good thermal insulating properties. It is also used as a sound absorption medium as the surface texture of the blocks breaks up sound waves and reduces reverberation.

THE LINOLEUM MANUFACTURERS' ASSOCIATION, 127 Victoria-st., London, SW1. (Stand 1045/1046.)

The stand has been designed to emphasise the advantages of linoleum over competitive floor coverings as well as to show all the latest linoleum developments and trends. Technical experts are in attendance to advise visitors on all flooring problems and to show samples of the latest ranges of linoleum colours, motifs and ranges. Scale models show the versatility of linoleum for use in schools and hospitals, where hygiene is all-important, and other public buildings where quietness may be a factor. In addition there are examples of the variations of floor pattern which can be built up with linoleum tiles.

MINISTRY OF WORKS, Lambeth Bridge House, Albert Embankment, London, SE1. (Stand 852/853.

Building for science is the theme of the stand. Since the war the Ministry has carried out £200 million worth of building work for scientific purposes on behalf of Government departments. Examples of work in this field are featured and include scientific buildings designed for the DSIR, the Ministry of Aviation, the War Office, the Post Office and the Atomic Energy Authority. They range from laboratories to wind tunnels and radio towers. The stand's background shows the size and scope of the Ministry's programme and includes major projects by photographic montage. In the foreground, models, drawings and photographs feature the compressed air installation at the National Gas Turbine Establishment, Pyestock, the supersonic tunnel at the Royal Aircraft Establishment, Bedford, the rotating wall laboratory at the Building Research Station, Watford, the wave basin building at the DSIR Hydraulics Research Station, Wallingford, Berkshire, and the anechoic chamber and reverberant room at the Building Research Station, Garston.

THE MODULAR SOCIETY LTD., 22 Buckingham-st., London, WC2. (Stand 203a.)

Copies of the Society's two publications, 'Modular Quarterly' and 'Modular Catalogue' are on display and leaflets and forms for application for membership are available to take away. The 'Modular Quarterly' publishes the Transactions of the Society, the 'Modular Catalogue' lists building components that are available generally with appropriate dimensions in whole multiples of the basic module of 4 inches.

THE NATIONAL FEDERATION OF BUILDING TRADES EMPLOYERS, 82 New Cavendish-st., London, W1. (Stand 876.)

The stand describes and illustrates some of the more important activities of the Federation in providing information on the building industry. In order to convey to visitors the wide range of this service there is incorporated in the stand a series of telephone booths. By lifting a receiver the visitor will be able to hear a recorded account of the work and range of interest of each of the Federation's principal departments. An indication is given in each booth of the information and subjects dealt with on the

A perspective view of the National Federation of Building Trades Employers' stand designed by Kenneth Lindy, Joseph Hill & Partners, architects

accompanying telephone. An illuminated map of England and Wales indicates the country-wide organisation of the NFBTE and its regional federations and local associations. The other main feature is a bookstall at which a wide selection of the Federation's publications is on sale.

THE NATIONAL FEDERATION OF CLAY INDUSTRIES, 30 Gordon-st., London, WC1. (Stand 147/8.)

The designer of this stand, Trevor H. Anson, student ARIBA, of Hull, won the first prize in a competition sponsored by The National Federation of Clay Industries. The exhibit expresses the importance, versatility and adaptability of bricks and other burnt clay products. Two large feature panels facing the gangways show examples of modern decorative brickwork; one displaying the use of projecting angled headers and the other, in 2in. bricks, demonstrating special joint treatments. On the reverse sides of both units there is a kaleidoscopic assembly of facing bricks; over 100 individual panels, contributed by brick manufacturers in all parts of the country, provide a display of colour and texture.

At each end of the stand there are similar units carrying feature panels of vertical tiling in plain tiles, specimens of 56 different makes and types of plain tiles, and a display of double roman and pantiles. There is also a selection of bricks in special shapes, and ridges and fittings for roof tiling. The complete units are supported on piers of red and blue engineering bricks, demonstrating the use of heavy duty clay products for load-bearing purposes.

A small pool with a fountain is screened by vertical rods featuring a selection of clay products. The wall of the office, on the opposite side of the pool, is in colour washed common brick whilst panels of clay quarries are incorporated in the floor on two sides of the stand, with specimens of quarry fittings. A wide selection of literature is available, including detailed lists of manufacturers.

THE SWEDISH BUILDING INDUSTRIES ASSOCIATION, 14 Trinity-sq., London, EC3. (Stand 1300/1320.)

Thirty-six Swedish firms, manufacturers of a wide range of building materials and household equipment, are exhibiting for the first time as a group. Their participation forms part of the 'Sweden Comes to Britain 1961-62' campaign, which so far has included exhibitions of Swedish furniture, glass, china, textiles, plastics and design, and in 1962 will include further exhibitions of consumer goods, mechanical handling equipment, hardware, and engineering products.

THE TIMBER DEVELOPMENT ASSOCIATION LTD., 21 College Hill, London, EC4. (Stand 949/950.)

The Association is featuring timber as an economic and functional material for house-building. The exhibit is designed to inform visitors about flooring and roofing systems including intermediate concrete joist and timber flooring construction with sound insulation. Two roofing systems displayed are stressed skin panel construction and solid timber plank, and roof construction using manufactured wood boards. All systems of construction are illustrated by full size models with details. Data sheets on each system are available for visitors to the stand.

11— MISCELLANEOUS

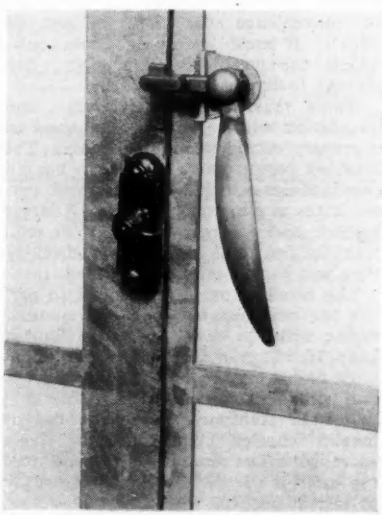
THE BRITISH ALUMINIUM CO. LTD., Norfolk-hse., St. James's-sq., SW1. (Stand 196/7.)

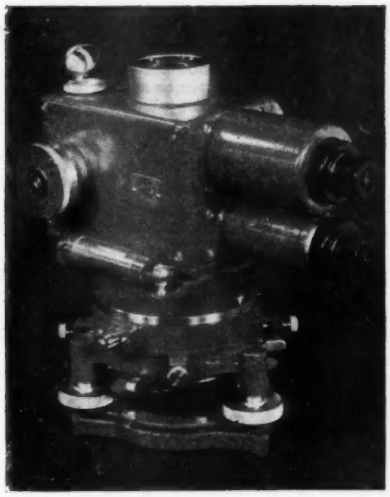
Information for architects is the theme of the display on the company's double-decker stand, which is constructed largely of standard aluminum products. It features the recently introduced British Aluminium Building Service. The aim of BABS is to assist the architect in the use of aluminium in his building projects in the most technically efficient and economical way. Its principal feature is a comprehensive manual, 'Aluminium for Architects,' which has been distributed to architectural practices throughout Britain. The manual is a compact technical reference book on the varied uses of aluminium in the building industry, co-ordinating the information which the architect most needs in his planning. It contains a list of the names, addresses and telephone numbers of all leading manufacturers of aluminium building products, plus stockists and roofing contractors.

CHUBB & SON'S LOCK AND SAFE CO. LTD., 14-22 Tottenham-st., Tottenham Court-rd., W1. (Stand 101.)

Of particular interest is the new Chubb range of security locks. This range is virtually completed and comprises locks for all types of doors. The principal item is the Castle mortise deadlock, reference 3G110, which is designed to give resistance against nearly all forms of attack by burglars. A complete range of security padlocks and padlock bars are also shown. A new item in this range is the 'Revobar.' In this the staple turns if force is applied, so that there is no fulcrum for leverage. The padlock merely swivels on the bar. Added protection can be given to windows by fixing a supplementary fitting to the ordinary fastener. This prevents a thief gaining entry by merely breaking the glass and releasing the ordinary type of catch.

A special lock for metal windows and fanlights. A turn of the catch secures the lock. Unlocking is by key





The new 'Autoplumb' for taking vertical sights is exhibited by Hilger & Watts Ltd.

THE HAIGH ENGINEERING CO. LTD., Ross-on-Wye, Herefordshire. (Stand 965.)

A new economy garbage disposal unit, the Tweeny Estate waste disposer, is introduced. While the unit will be generally available it has been designed particularly for bulk installation in housing estates, flat developments and speculative projects. The model can be equipped with automatic reversing action as an optional extra. This provides a safety cut-out if the machine is misused and also reverses the direction of the impeller, automatically doubling the life of the cutter ring.

HILGER & WATTS LTD., 98 St. Pancras Way, Camden-rd., London, NW1. (Stand 1063/4.)

An entirely new instrument for taking vertical sights to an accuracy of 1 second of arc, the Autoplumb, is featured on this stand. With the tendency nowadays towards tall buildings, the instrument should attract considerable attention. An upward-sighting telescope with a power of 32 incorporates an optical compensator which automatically keeps the line of sight vertical even if the instrument is out of level by several minutes of arc. A second telescope of X 17 magnification sights downwards but has no compensator; it relies on the instrument being reasonably level. The two telescopes are housed in a body which can be rotated about a vertical axis and which is mounted on a three-screw levelling base. The instrument should be set up over a ground mark relatively close to it, though observations can be made downwards as far as 30 ft. Observations upwards to position a locating target vertically over the ground mark are possible to 400 ft. The overall accuracy of the instrument is 0.01 ft. in 100 ft.

DOUGLAS KANE LTD., 243 Upper-st., London, N1. (Stand 611.)

This company is exhibiting the complete range of its 'Obo' masonry fixing devices. This includes for the first time the new 'Obo' K-plug, an expanding masonry plug available in 3 diameters with $\frac{5}{16}$in., $\frac{1}{4}$in. and $\frac{3}{8}$in. screws and bolts for every type of masonry fixing. It contains a locking device which completely jams the plug in the wall, producing outstanding holding power for its small diameter. Also shown for the first time is 'Loctite' sealant, a product which will be of great interest to all users of contractors' plant. This is a thin oily liquid which automatically

hardens when confined between closely fitting metal parts and forms a tough plastic seal and lock. In practice, a drop of the sealant applied to screws, nuts or bolts prevents them from ever loosening under vibration and yet enables the component to be removed with normal hand tools when required.

RYLANDS BROTHERS LTD., Warrington. (Stand 919.)

A wide range of wire strand and cables for prestressing, illustrated in photographic form is exhibited. Also included are chain link fencing both galvanised and plastic coated in many colours, wire nails of all types paralleled in 56-lb. cartons, and wire ropes for Ruston Bucyrus equipment.

Other Notices

J. C. BAMFORD (EXCAVATORS) LTD., Lakeside, Rocester, Staffs. (Stand 724/725.)

The company is showing its new hydraulic excavator/loader, which is to supplement an existing heavier model. Two entirely new features are the provision of hydraulic stabilisers giving an angle of adjustment of 10 degrees to the horizontal to facilitate alignment on uneven ground, and a kingpost which can be offset and locked in any position on a 5 ft. 8 in. rack across the back of the machine. This enables the machine to be used for offset trenching, ditch clearing and operations of this nature. It is likely to appeal to the smaller builder.

RICHARD BAXENDALE & SONS LTD., Bamber Bridge, Lancs. (Stand 407.)

Three new products are being shown this year; a central heating system in which air is drawn through an intake grille, blown over a heat exchanger and conveyed through short ducts to grilles in the room; the Burnall fire, a high-efficiency open fire which can be suppiled for continuous or intermittent burning; and a small bore central heating system. This operates from an open fire with a back boiler and supplies the domestic hot water as well as heating four radiators and a towel rail.

FORMICA LTD., 84/86 Regent-st., London, W1. (Stand 935/937.)

A new type of decorative laminate, known as the Architectural range is shown for the first time in public. The main technical advance here is the strengthening of the colour element to the point where the material will withstand strong sunlight and other exposed climatic conditions. It is therefore equally suited for exterior as for interior application. A special technical section on the stand features the company's post-forming grade from which curved surfaces are provided. In addition the dab-fixing of Beautyboard with the new adhesive Ardux, developed by CIBA (A.R.L.) Ltd., is being demonstrated.

STANLEY WORKS (GB) LTD., Rutland-rd., Sheffield 3, Yorks. (Stand 623.)

A new type of heavy duty power saw is being shown for the first time in this country. Known as the Stanley No. 363, it is a two speed, all-purpose reciprocating saw developed in the United States With a length of only 14½ in. it can be operated comfortably between joists of 16 in. centres and weighs only 8 lb. Running at the high speed of 3,000 strokes per minute the saw rapidly cuts wood up to 3 in. thick, whilst at low speed (2,200 spm) it is useful for cutting a wide range of metals, plastics, pipe, conduit and similar materials. In addition to being capable of fast straight cutting, the saw can be converted into a high capacity jig saw able to cut and shape materials up to 3 in. thick.

Housing for the Disabled

Lady Hamilton's Address to the Housing Centre

SPEAKING at the Housing Centre, London, on October 24 LADY HAMILTON, who has made a special study of the subject, contended that in the United Kingdom much more attention needed to be given to the design of dwellings for disabled people.

For the purpose of her address she excluded from the classes of persons for whom what she termed 'purpose-built homes' were needed, such people as the blind, the deaf and people who will never be able to live independent lives, such as those who have to exist in iron lungs, tracheotomy cases, paralysed people and so on. She was thinking of people who can do a great deal for themselves in their own homes, people whose bodily functions are in some way or another impaired but who, with adequately-planned homes and some mechanical aids, could lead more or less normal lives.

'Most people of this category,' she said, 'do not live in homes that have been specially designed for them.' Very little could be done to improve the fundamental planning of homes of conventional design, such as were built according to the local building tradition.

There were very many disabled people who could be removed from institutions or who would be saved the necessity of going into them if more attention were given to planning individual homes specially for them. There seemed to be very little purpose-building for such people.

'We who are not disabled can afford to be inefficient in our houses,' said Lady Hamilton. 'We have the strength to be so. Disabled persons cannot afford to be inefficient in running their homes.' She referred to the handicaps suffered by disabled people in attempting to take a bath, to go to the lavatory, to open windows, to move about generally and to proceed from indoors to outdoors and vice versa.

Essential Requirements

The dwelling must allow the individual to move about in it with the maximum of convenience and the minimum of effort. It must be on one floor only, unless the person concerned was rich enough to have a lift installed.

There must be wide doorways, and circulation within the dwelling must be a primary consideration in planning. The disabled person must be able to use all the facilities which a non-disabled person takes as a matter of course. A larger kitchen and a larger bathroom in relation to the total size of the dwelling than was normal must be provided.

The dwelling must be planned to permit the maximum amount of communication with the outside world. By that Lady Hamilton meant that the resident must find it easy to set foot out of doors and sit there in suitable weather and motorised transport, whether a car or invalid wheeled chair, must be easily accessible. The removal of garbage from the interior of the house must be made as easy as possible.

It was necessary to evolve a system of heating which was completely flexible and efficient and cheap to run and needed the minimum of attention.

As much as possible of the work of running the house must be removed by careful work study. This could be done through the arrangement of the rooms and the development of domestic appliances. Everything would have to be considered most carefully from the points of view of serviceability and ease of maintenance and in order to reduce work, so that people of small strength could do what was required.

Multi-Purpose Planning

Houses must be basically multi-purpose in plan. Lady Hamilton suggested that it was difficult to get local authorities to erect such dwellings and once you started on a scheme for one type of house the chances of getting another type built became very much reduced.

The price of such dwellings must be kept down as much as possible and every single item of cost must be ruthlessly considered to see how the cost could be reduced. If we in this country could achieve a supply of such purpose-designed houses, labour-saving and not too expensive, how many people now in chronic wards of institutions could come out and how many who were now going in would not need to do so!

Lady Hamilton suggested that in general the architectural profession had given very little attention to the problem of designing dwellings for disabled people. The attitude of the LCC appeared to be that you did not need to provide purpose-designed houses for disabled people, because in conventional dwellings you could always fit such aids as hand rails in the bathroom, ramps instead of steps and so on. She did not agree with this view.

Giving an example of a dwelling designed for disabled people, Lady Hamilton described the house at Oxford designed by Mr. F. Smith. Fundamentally, she said, you should have a design of three rectangles in a row, all, of course, on one floor. These rectangles were the bathroom, hall and kitchen. Next to the bathroom would be one bedroom and adjoining it another bedroom. On one side of the hall would be a sliding door which gave easy access to the exterior. Doors would be wider than usual. There would be a big circulating space in the middle of the dwelling and the bathroom and kitchen would also be spacious.

Lady Hamilton also suggested that disabled people who could afford to pay for their own special needs in housing could be treated as 'guinea pigs' in studying this type of housing and therefore it was important to try to develop private housing of this type, so that we could get experiments financed by private funds.

*** A conference on 'Planning for the Disabled' is arranged for November 23 at the Building Exhibition (see p. 943).

'Slums Cleared in Ten Years'

Dr. Charles Hill's Forecast

THE GOVERNMENT'S determination to maintain a high rate of house-building and slum clearance, while restraining urban sprawl and preserving agricultural land and national parks, demanded a combined operation of incredible complexity at national, regional and local level, said DR. CHARLES HILL, the Minister of Housing and Local Government, at Scarborough on November 7. Speaking at the conference of the National Housing and Town Planning Council, the Minister said: 'The Government is determined to maintain house-building at as high a rate as is consistent with a sound economy and the many competing demands on the building industry and on resources of skilled manpower. The slum clearance drive must continue and our towns and cities must be renewed to make them better places to live in and to relieve population pressures on the countryside. Overspill population has to be accommodated in town expansion schemes and new towns and not scattered haphazardly over our countryside.

'All this,' continued the Minister, 'demands a combined operation of incredible complexity at national, regional, area and local level; and in this operation I am confident that local knowledge, local experience and local wisdom will have an invaluable part to play.'

Future Impact of Population

Earlier in his speech Dr. Hill dealt with the expansion of population and the impact this must have on planning future development. 'How right your chairman was,' he said, 'to stress in his opening remarks the need to review development plans and put them on a realistic basis for the next 20 years. A development plan which is out of date and which fails to provide adequately for future needs is an anti-development plan.

'There is,' Dr. Hill added, 'an undeniable need for more land for development, but I doubt whether everybody yet fully appreciates the scale of our development needs over the next 20 years. In the last 10 years the population of England and Wales has gone up by 2.3m. —a bigger increase than in any 10-year census period since 1911—and we must plan for another 4 to 5m. people in the next 20 years. This is one of the many reasons why development plans now need reviewing and why their allocations of land for development need to be revised and extended.'

Dealing with the housing target for the future, Dr. Hill listed four headings: First, we must overtake the present numerical shortage and provide a working margin; second, we must keep pace with the continued growth in the number of households; third, there were over ¼m. known slums; and fourth, there was also a great obsolescence problem, particularly in the older industrial areas of the Midlands and the North. There were something like 4m. houses in Great Britain over 80 years old.

'These needs,' continued Dr. Hill, 'add up to at least 6m. houses and flats in Great Britain over the next 20 years. Last year we completed almost 298,000 houses. This year it will probably be rather fewer, though we started the year with 12,000 more houses under construction. The hard fact is that our resources are limited. The capacity of the building industry is overstrained. Housing is very important, but there are other demands on our capacity. We cannot have more of everything at once. To increase our productive capacity and our reserves of skilled labour will take time.

'Like your chairman,' the Minister concluded, 'I want to see an increase in the rate of slum clearance and we must work towards it. Even so, we are clearing 70,000 dwellings a year in Great Britain. That is a solid achievement. Within 10 years the great majority of authorities should have eliminated all known slums.'

Housing Progress

1961 Figures to September

THE HOUSING PROGRESS REPORTS presented to Parliament as White Papers (Cmd. 1533, England and Wales, price 9d.; Cmd. 1534, Scotland, price 1s. 3d., from the Stationery Office) by the Minister of Housing and Local Government and the Secretary of State for Scotland show that the number of permanent houses completed in Great Britain during September was 24,824 compared with 26,242 in 1960. In the first nine months of 1961, 216,827 permanent houses were completed compared with 218,491 in the same period of 1960. Detailed figures for completions and for houses under construction at the end of September were:

PERMANENT HOUSES AND FLATS COMPLETED

	Great Britain			England and Wales		
	Post-war total to Sept. 30, 1961	Completions in September	Completions in 1961 to Sept. 30	Post-war total to Sept. 30, 1961	Completions in September	Completions in 1961 to Sept. 30
By Public Authorities:						
Local Authorities* ...	2,466,735	8,944	81,360	2,092,765	7,006	66,865
Housing Associations...	47,310	131	1,335	45,709	131	1,295
Government Depts. ...	81,951	300	3,311	73,223	203	2,941
Total	2,595,996	9,375	86,006	2,211,697	7,340	71,101
By Private Builders:	1,310,983	15,449	130,821	1,265,636	15,015	125,715
Total	3,906,979	24,824	216,827	3,477,333	22,355	196,816

PERMANENT HOUSES AND FLATS UNDER CONSTRUCTION

	Great Britain			England and Wales		
	Under construction at Sept. 30, 1961	Under construction at June 30, 1961	Under construction at Mar. 31, 1961	Under construction at Sept. 30, 1961	Under construction at June 30, 1961	Under construction at Mar. 31, 1961
By Public Authorities:						
Local Authorities* ...	154,101	149,380	142,795	127,446	123,408	118,404
Housing Associations...	1,477	1,378	1,385	1,425	1,326	1,329
Government Depts. ...	6,502	6,274	6,163	6,300	6,009	5,861
Total	162,080	157,032	150,343	135,171	130,743	125,594
By Private Builders ...	145,103	141,445	130,226	139,151	135,655	124,988
Total	307,183	298,477	280,569	274,322	266,398	250,582

* In Scotland includes houses built or being built by Scottish Special Housing Association.

CLEARANCE OF UNFIT AND OTHER HOUSES: ENGLAND AND WALES

	Third quarter, 1961	First half, 1961	Total since April 1, 1945
Number of Houses:			
In clearance areas submitted ...	9,479	20,082	—
In clearance orders confirmed ...	1,939	3,718	59,201
In compulsory purchase orders confirmed ...	7,719	17,377	179,973
Demolished or closed ...	†	31,053	409,163‡
Number of Persons:			
In clearance areas submitted ...	27,472	59,803	—
In clearance orders confirmed ...	5,460	9,224	160,537
In compulsory purchase orders confirmed ...	22,851	49,028	547,716
Moved from houses demolished or closed ...	†	82,208	1,218,452‡

† Not available. ‡ To June, 1961.

Air-Conditioning

Trends During the Coming Decade

PROFESSOR B. H. JENNINGS, of the North Western University, Illinois, USA, and formerly director of research, ASHRAE, was one of the principal speakers at the international conference on heating, ventilating and air-conditioning, held from September 27 to October 4 during the HEVAC exhibition at Olympia.

Professor Jennings pointed out that the air-conditioning industry stood on the threshold of expanding progress and growth during the next decade. This statement was true for the world as a whole although the author's comments were most specifically directed to the patterns which it was thought would develop in the USA. A number of the statistical analyses, which have been made, can be used as a basis for extrapolating growth. For example, 1960 statistics showed that approximately 49 per cent of homes using all fuels were provided with automatic heating. This, of course, did not imply that other homes were not heated in the cold parts of the country, but it did show that there was still a large untapped market for equipment. In the case of room air-conditioners, market saturation was only at approximately 15 per cent, in central residential cooling at 2.6 per cent, and factory cooling at less than 5 per cent. Thus the United States had shown good progress, but there remained a large potential for growth.

Public Buildings

In new construction of major public buildings, hardly any were being installed without provision for complete year-around air-conditioning. One big exception to this rule existed in the case of schools which were customarily shut down during the summer months. How long this luxury of allowing the rising generation two to three summer months without educational responsibility would continue was a matter which could not be settled at the engineering level, but 'straws in the wind' indicated that educational activity might employ a larger fraction of total yearly time. If and when schools were operated during the hot summer months, there would be increasing need for air-conditioning if effective teaching and learning was to take place.

Revolution in Fuels

A revolution in fuels had already occurred, and the change was continuing. For example, coal had lost its prominent position as being the major fuel for domestic use. Oil represented the first serious competition and contributed greatly to progress in automatic heating. This fuel in turn was being supplanted by gas, with this being made possible by an enormous network of pipe distribution systems, starting from gas fields in the United States and adjacent Canada and running to almost all parts of the country. However, even the dominant position of gas was beginning to be threatened by electricity as a competitive heating medium. At the moment this threat was not too serious, but in the event that advances were made in the design and development of heat pumps, and moreover if the thermo-electric heat pump developed effectively, a great change could occur. In fact, thermo-electric research appeared to be on the verge of a major breakthrough with the possibility of current thermo-electric elements decreasing in cost as mass production of the elements got under way. If, in addition to this, the performance of the elements could be even slightly improved, the potential of this new type of apparatus could be striking in its impact on both heating and refrigeration.

Government Aid for Co-operative Housing

Advantages of Mutual Ownership

THE Minister of Housing and Local Government has announced his intention to provide £25m., as a 'pump-priming' operation, to help finance non-profit housing associations with loans. There are at present some 650 such associations in membership with the National Federation of Housing Societies. In her recent address to the annual conference of the Institute of Housing DAME EVELYN SHARP, Permanent Secretary, Ministry of Housing and Local Government, said that she thought there was a big future for the housing association movement, not only in building new houses but in the management and improvement of existing rented houses. She said she would like to see an association in every town in the country.

A New Pamphlet

In a new pamphlet* Mr. Harold Campbell, who is the Assistant National Secretary, Co-operative Party, describes a particular form of housing association which the Minister and his Permanent Secretary have specially commended, namely, the association which consists of tenants who have themselves combined to own and manage their own flats or houses co-operatively.

While local authorities could do much more to encourage the development of such societies by a judicious use of their existing powers experience in other countries shows that no large-scale growth in this field is possible when there is no national or central organisation which actively propagates the idea among those who could benefit from it. In Mr. Campbell's view the National Federation of Housing Societies is not equipped to perform this major task. Instead he advocates a national association modelled on the Swedish HSB or the Danish Arbejderbo, which he describes in the pamphlet.

Mr. Campbell concludes: 'There is no cheaper way of providing and maintaining houses to rent than through mutual ownership, but, if because of high interest rates and skyrocketing, speculative land values, the economic rent a tenants' co-operative needs to charge is too high, no other means of providing homes at economic rents (i.e. without subsidy) is possible. The Government must recognise this fact.'

*'Housing Co-ops and Local Authorities A Practical Guide.' By Harold Campbell. Published by the Co-operative Party, 54 Victoria-street, London, SW1. Price 1s.

Site-Safety Experiment in Staffordshire

One Officer for Several Firms

A SIX MONTH accident prevention experiment has recently been completed in North Staffordshire. With the support of HM Factory Inspectorate the North Staffordshire Association of Building Trades Employers appointed a safety officer to supervise the operations of fourteen member firms. Between them they employ approximately 500 operatives. At a special meeting of the association on October 18, the safety officer, MR. L. E. ALLEN, a retired master builder and a former president of the association, reported on the pilot scheme. At any one time he was responsible for upwards of 50 sites. In the six months 400 inspections were made.

At the conclusion of a visit a report was written and a copy left with the foremen. One of Mr. Allen's maxims is that 90 per cent of accident prevention work must be done on site. Each firm and their sites were coded and indexed. Graphs recorded visits, developments and safety standards on every site. Representatives of the 14 firms spoke in support of the scheme and of the good relations which existed between the safety officer and site personnel.

Initiative Praised

MR. V. B. JONES, factory inspector, Stoke-on-Trent, praised the builders for their initiative and commented upon the marked difference between sites under the safety officer and those outside his jurisdiction. The scheme is to be continued and expanded, the ultimate object being to offer coverage to all firms in the association, a large proportion of whom employ fewer than fifty operatives. The experiment showed that a safety officer for a number of firms is a practical proposition. Under the new regulations to come into force in March, 1962, every contractor who normally employs more than 20 persons on construction work must appoint a safety officer on a full- or part-time basis.

Honorary Appointment

Mr. Allen's appointment is honorary and on a group basis the cost of a salaried safety officer would be reasonable, producing lower insurance premiums and greater productivity. Both HM Factory Inspectorate and the Midland Federation of Building Trades Employers are interested in this scheme and the Federation is encouraging its local associations to follow the example.

THE BUILDER LONDON MEASURED RATES

These prices for new building work in London normally appear in the first issue of each month only. The prices are inclusive of all allowances for National Insurance, Holidays with Pay and Public Holidays, Third Party Risk, Travelling Allowances and Guaranteed Week. They cover a profit of 10 per cent on the prime cost without any addition for establishment charges.

These rates do not include for Foremen and other preliminary items, such as office, sheds, plant and scaffolding, etc., and these must be added accordingly.

The basic cost of the labour and materials used in arriving at the rates has been derived from the 'Current Prices of Materials' published in *The Builder*.

The data given are copyright. While every endeavour is made to ensure accuracy, we do not hold ourselves responsible for any error that may occur.—EDITOR.

EXCAVATOR

All hand labour	*Per yd. cube*									
	Loose earth		*Firm soil*		*Stiff clay*		*Chalk and flints*		*Rock, etc., no blasting*	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Surface excavation to shallow depths	9	4	11	10	13	8	20	7	52	8
Bulk do. or large trenches, etc., not exceeding 5 ft. deep ...	8	6	10	9	12	5	18	3	47	11
Trenches do. under 4 ft. 6 in. wide and do.	11	6	13	11	16	1	23	9	62	10
Pier holes and similar under 6 ft. square and do.	12	11	16	1	18	8	26	6	70	11
Additional throw for every 5 ft.:										
Bulk excavation	4	1	4	1	6	0	6	0	6	2
Trench ,, ...	5	7	5	7	7	6	7	6	7	8
Pier ,, ...	6	3	6	3	8	6	8	6	9	7
Return, fill and ram	5	9	5	9	7	8	7	8	10	0
Wheeling surplus n.e. 100 yds. run and depositing	9	2	9	2	9	2	9	2	10	6
Underpinning in trenches ...	15	0	20	9	24	2	34	6	—	

		s.	d.
Loading lorries and transporting to tip	Yd. cube	18	0
Basketing out and depositing	,,	11	6
Planking and strutting to sides of surface or basement trenches:			
Depth up to 5 ft.	Ft. sup.		7
,, ,, 10 ft.	,,		9
,, ,, 15 ft.	,,		10
Hardcore:			
Filled-in layers and consolidated	Yd. cube	24	6
do. 4 in. thick	Yd. sup.	3	7
do. 6 in. thick	,,	4	9

CONCRETER

	Basic yard cube rates							
	1:12		1:3:6		1:2:4		1:1½:3	
Aggregate	1½ in. all-in		1½ in.		¾ in.		½ in.	
Concrete in normal foundations: (minimum 8-ton cement loads)—	s.	d.	s.	d.	s.	d.	s.	d.
Portland cement standard specification	69	0	77	8	85	6	93	7
Portland cement rapid hardening	70	3	79	6	88	0	96	11
Water-repellent cement	73	0	83	5	93	9	104	1

Add to above basis for:		s.	d.
4 in. surface beds	Yd sup.		8½
6 in. ,, ,, ...	,,		9½
(If above two items worked around mesh reinforcement, add 6½d. per yd. *super.*)			
Foundations in underpinning in short lengths ...	Yd. cube	19	9
Beds and flaunchings to drains	,,	9	4
Pier or stanchion foundations—small	,,	4	9
Sundry small items not exceeding 3 ft. cube in plinths, curbs, padstones, etc.	,,	27	0

REINFORCED CONCRETE

ADD to above 'Basic Yard Cube Rates'

Reinforced concrete including working around reinforcement between formwork and hoisting to normal levels:		s.	d.
Foundations and similar	Yd. cube	6	3
Isolated stanchion or pier bases	,,	6	3
Walls not exceeding 6 in. thick	,,	31	3
,, ,, ,, 12 in. ,, ...	,,	21	10
Suspended floors or flat roofs 4½ in. thick	Yd. cube	27	0
,, ,, ,, ,, 6 in. ,, ...	,,	20	3
,, ,, ,, ,, 9 in. ,, ...	,,	17	3
(Beams attached to floors or flats, *add* 7/9 yd. cube)			
Isolated beams or lintels average 72 sectional inches ...	,,	37	6
Do. average 144 sectional inches	,,	30	2
Columns or stanchions average 72 sectional inches	,,	43	9
,, ,, ,, ,, 144 ,, ,,	,,	39	4
Staircases and landings, etc.	,,	65	6
Shell roofs average 3 in. thick, including labour forming curved surface	,,	156	0
Hollow tile floors :			
Hollow clay tiles 4 in. thick with 1 : 2 : 4 concrete ribs at 14 in. centres with filler tiles and 1½ in. fine concrete screed (excluding reinforcement and form work)	Yd. sup.	20	0
All as above but 6 in. thick clay tiles	,,	24	3
,, ,, ,, ,, 9 in. ,, ,, ,, ...	,,	30	3
Sundry items :			
2 in. concrete (1 : 2 : 4) blinding bed	Yd. sup.	5	3
Spade finish to concrete beds	,,		10½
Trowel ,, ,, ,, ...	,,	2	1
Laying to falls and currents	,,	1	3
Hacking concrete by hand	,,	3	2
Hacking concrete by use of proprietary liquids ...	,,	1	9
Damp-proof membrane in three coats with sanded key	,,	5	3
⅜ in. Bitumen expansion joints 4 in. deep in floors ...	Yd. run	4	3

	Mild steel rods (round) cut, bent, hooked, wired and fixed complete (Ex. London Stock)							
	¼ in.		⅜ in.		½ in.		⅝ to 1 in.	
Reinforcement :	s.	d.	s.	d.	s.	d.	s.	d.
Floors beams laid in only	94	0	82	2	76	11	71	6
,, ,, wired into frames...	107	6	95	8	90	6	85	0
Walls wired into frames	107	6	95	8	90	6	85	0
Columns wired into frames ...	107	6	95	8	90	6	85	0
Staircases wired into frames ...	110	3	98	5	93	3	87	8

		s.	d.
Steel mesh fabric reinforcement :			
Laid in floors including laps and straight cutting and wiring, etc. :			
Weight 1.83 lb. per yd. sup.	Yd. sup.	3	4
,, 4.71 lb. ,, ,, ,, ...	,,	4	10
,, 7.32 lb. ,, ,, ,, ...	,,	7	6
Raking cutting worth 6 in. material cost per ft. run			
Circular cutting worth 9 in. material cost per ft. run.			
Formwork (Sawn) including strutting, easing and removal and average four times use of timber :			
Soffit of floors and flat roofs	Yd. sup.	18	6
Sloping soffits of stairs	,,	25	0
Barrel-vault soffits of floors and roofs	,,	23	6
Vertical sides of walls	,,	17	6
Battering sides of walls	,,	23	0
Columns	Ft. sup.	2	8
Lintels and beams	,,	2	10
Staircase strings cut to tread and riser	Ft. run	4	0
Edges of concrete floors, etc., up to 12 in. deep per inch in height	,,		2½
Rebates or similar per inch girth up to 6 in. girth	,,		3
Raking cutting	,,		9½
Extra cost for wrought shuttering and labour rubbing down to leave fair face on concrete ...	Yd. sup.	2	10
Pre-cast Concrete (1 : 2 : 4) *including fair face :*			
4½ in. x 6 in. reinforced lintels	Ft. run	3	4
9 in. x 6 in. ,, ,, ...	,,	5	9
9 in. x 9 in. ,, ,, ...	,,	9	4
Steel Formwork :			
Steel shuttering forms with patent expanding floor centres and telescopic props not less than four times use on each job with continuous use ...	Yd. sup.	14	0

Partitions : (Minimum 100 yd. super)	*Yd. super rates*			
	2 in.	*3 in.*	*4 in.*	*6 in.*
	s. d.	s. d.	s. d.	s. d.
Clinker concrete slab partitions in cement mortar	10 4	12 9	15 0	—
Cranham terra cotta slab partitions in cement mortar	14 8	17 8	20 8	—
Moler partition block partitions in cement mortar	20 5	23 8	26 8	—
Thermalite-Ytong partition blocks in cement mortar	—	15 8	19 4	28 6
'Phorpres' hollow clay partition blocks in min. of 6-ton loads ...	10 9 (2½ in.)	12 9	16 1	26 2

Cuttings :

Raking cutting and waste = ⅓ of ft. sup. rate
Circular „ „ „ = ½ of ft. sup. rate
Cutting around openings = ½ of ft. sup. rate
Cutting and bonding at angles, intersections and ends all at 6d. ft. run.

BRICKLAYER	*Yd. super rates*			
	Plain flettons	*Rough stocks*	*Second stocks*	*Blue wire-cuts*
	s. d.	s. d.	s. d.	s. d.
Brickwork in cement mortar (1 : 3) reduced to one brick thick	39 6	55 0	63 9	95 0
Deduct if in 1 : 1 : 6 cement-lime mortar	10	10	10	10
Add if in :				
Filling in openings	6 3	6 3	6 6	8 1
Backing to masonry	3 1	3 1	3 4	4 0
Building overhand	2 0	2 0	2 1	2 5
Raising on existing work	3 1	3 1	3 4	4 0
Circular on plan to quick sweep...	6 0	6 0	6 4	7 0
Small detached piers, plinths, etc.	9 2	9 2	9 8	11 6
Underpinning	6 0	6 0	6 6	7 9
Brick-on-edge walls	14 2	19 4	22 7	—
Half-brick sleeper walls honeycombed	14 11	20 0	—	—
Half-brick walls	23 10	31 9	36 4	55 4
do. with fair face and pointing both sides as work proceeds	27 4	—	40 0	59 8
One-brick wall with fair face and pointing both sides as work proceeds	45 4	—	69 6	102 4
11 in. cavity brick wall with two half-brick skins with 2 in. cavity and three galvanised iron twisted ties to every yd. sup.	51 6	—	76 0	—

Sundry items :		s. d.
Horizontal double slate damp-proof course ...	Ft. sup.	3 8
Vertical „ „ „ „ ...	„	4 6
Hessian-base bitumen damp-proof course	„	1 7
Levelling and preparing for raising on	„	1 2
Cutting, toothing and bonding new to old	„	4 6
Wedging and pinning with slates in underpinning ...	„	5 8
Rough cutting	„	7
Cutting and fitting brickwork around steel ...	„	7
Bed and point frame one side	Ft. run	4½
Rough cutting squint or birdsmouth	„	7
Labour plumbing angles on faced work	„	3
Rake out and point to lead flashing	„	8
„ „ „ „ stepped flashing	„	11½
Cutting groove for skirting and point	„	1 9
Shallow chases for small pipes and conduit	„	1 11
Metal reinforcement 24 gauge 2½ in. wide	„	5

Faced work : (Flemish bond) :		
Add or deduct for every 10s. per 1,000 difference from basic price of common bricks in Flemish bond in solid work	Yd. sup.	9
do. to half-brick wall in stretcher bond	„	6½
Add for extra labour to each side in facings and pointing as work proceeds	„	3 6
do. butt joints raked out and pointed with special mortar	„	6 9

If built in English bond, add 12½ per cent to above items.

Labours :		
Fair cutting	Ft. run	1 3
Fair circular cutting	„	1 6
Fair squint or birdsmouth cutting	„	1 11

Copings :		*9 in. wall*	*14 in. wall*
		s. d.	s. d.
Brick-on-edge coping in flettons finished fair and pointing as work proceeds ...	Ft. run	2 8	3 7
Add for every increase by 10s. per 1,000 in cost of superior bricks	„	1	1½
Add for two courses of roofing tiles under and cement weather fillets on both sides	„	4 0	4 9
Cills :			
Two courses of roofing tiles laid breaking joint in cement mortar, set weathering and pointing ...	Ft. run	4 0	
Arches :			
Extra over fletton brickwork for brick-on-end flat arch 4½ in. on soffit and 9 in. high in facings p.c. 350s. per 1,000 and pointing	Ft. run	3 9	
Extra over fletton brickwork for fair axed arch in stock facings p.c. 350s. per 1,000 and pointing (cuttings measured separately)	Ft. sup.	9 9	

CURTAIN WALLING

Curtain walling of hollow, extruded, aluminium alloy mullion and transom units fixed together to form a grid to conventional steel and concrete framework, including glazing complete and a reasonably priced infilling panel and subject to the number of vents, etc., required, a fair average price is from 23/- to 30/- per ft. sup.

PAVIOR

	Yd. super rates			
	½ in.	*¾ in.*	*1 in.*	*1¼ in.*
	s. d.	s. d.	s. d.	s. d.
Cement screed (1 : 3) to receive pavings	4 10	5 9	6 8	7 8

Add to above for :		d.
Trowelling smooth	Yd. sup.	8
Narrow widths or small quantities — add 25 per cent. to plain surfaces : Laying to falls	„	5

	Yd. super rates			
	1 in.	*1¼ in.*	*1½ in.*	*2 in.*
	s. d.	s. d.	s. d.	s. d.
Granolithic paving (1 : 2½) laid on concrete	9 6	11 0	13 3	14 6

Add to above :		s. d.
Narrow widths or small quantities—add 25 per cent. to plain surfaces.		
Surface hardening with three coats of silicate of soda	Yd. sup.	1 8
Carborundum finish with 2 lb. per yd. sup. trowelled in	„	3 3
¾ in. skirting 5 in. high covered at bottom and fair top edge	Ft. run	3 0
Mitres and ends—8d. each.		
Composition flooring ½ in. thick	Yd. sup.	18 0
Terrazzo paving ⅜ in. thick	„	45 0
Rubber flooring ¼ in. thick	„	65 0

ASPHALTER

		Mastic BSS 988	*Natural rock BSS 1162*
Asphalt roofing :		s. d.	s. d.
¾ in. flat to falls in two thicknesses on felt underlay on prepared screed	Yd. sup.	15 0	21 0
do. in small quantities or narrow widths	Ft. sup.	2 1	2 11
6 in. high skirting with angle fillet and splayed edge at top	Ft. run	2 8	3 2
External angles on do.	No.	8	8
Internal angles on do.	„	8	8

		Mastic BSS 1097	*Natural rock BSS 1418*
Asphalt Damp-Proof Course and Tanking :		s. d.	s. d.
Vertical damp-proof course in 2 thicknesses	Yd. sup.	22 0	28 6
do. in narrow widths	Ft. sup.	2 8	3 6
¾ in. Horizontal damp-proof course in two thicknesses	Yd. sup.	15 0	21 0
do. in narrow widths	Ft. sup.	1 11	2 8
Vertical tanking in three thicknesses ...	Yd. sup.	26 3	33 0
1½ in. Horizontal do. in three thicknesses	„	20 3	30 8
Labour double angle fillet	Ft. run	1 5	1 5

DRAINLAYER

	Per yd. run Depth of trench				
	2 ft.	3 ft.	4 ft.	5 ft.	10 ft.
	s. d.	s. d.	s. d.	s. d.	s. d.
Excavate trench, part return fill and ram and remove surplus, inc. planking and strutting. (In firm soil—if in clay or chalk adjust in accordance with previous excavation rates)	9 0	23 9	31 8	39 6	117 0

	Per yd. run		
	4 in.	6 in.	9 in.
	s. d.	s. d.	s. d.
Concrete (1 : 6–1½ in. agg.) 12 in. wider than external diameter of pipe in 4 in. bed and benching up on both sides	8 9	11 8	12 5
do. but 6 in. bed and do. ...	10 6	12 5	14 11
do. but 4 in. bed and surround to pipe	12 9	15 10	21 0
do. but 6 in. bed and surround to pipe	17 1	20 10	26 1
	Per ft. run		
Salt glazed drain pipes laid and jointed in trench (Minimum two-ton loads) :	4 in.	6 in.	9 in.
	s. d.	s. d.	s. d.
'Seconds'	2 11	4 1½	6 7
'Best'	3 2	4 7	7 5
'Best Tested'	3 11½	5 8	9 5
'British Standard'	3 5	4 10½	8 0
'British Standard Tested'	4 2	5 11½	9 10
Extra for bends 'Best' quality	4 5	6 7	19 0
Extra for junctions 'Best' quality	7 10	11 1	23 11
Cast iron drain pipes to BSS 437 laid and jointed with molten lead in trench	15 6	22 9	—
Extra for :			
Short lengths	4 3	5 4	—
Bends and extra joints	23 6	60 6	—
Junctions and do.	48 3	105 8	—
Cast-iron gulley trap with 9½ in. x 6½ in. grating and joint	46 6	—	—
Cast-iron rainwater shoe with vertical inlet, inspection door and bedding and joints ...	71 9	—	—
Cast-iron inspection fittings with single branch fitting one side	167 0	—	—

	Per ft. run		
	3 in.	4 in.	6 in.
	s. d.	s. d.	s. d.
Pitch fibre pipes to BS 2760 and laying and jointing in trench (in loads of £60 to £250)	2 7½	3 5	6 4

		4 in.	6 in.
Manhole items :		s. d.	s. d.
Brown glazed stoneware, straight, half-round channels	Each	5 7	8 0
do. ordinary channel bends ...	„	12 5	17 9
Three-quarter section curved channel bends with splayed ends	„	15 1	22 8
Cast-iron heavy galvanised steps	Each		13 6
Bedding and sealing medium weight manhole covers and frames (cost of cover to add)...	„		11 0
do. heavy road covers and frames	„		14 6

MASON

		Per ft. cube		
		Bath	Portland	York
		s. d.	s. d.	s. d.
Stone and all labours fixed in :				
Ashlar average 6¾ in. on bed ...	Ft. sup.	34 4	39 3	41 0
Moulded string course 9 in. x 6 in.	Ft. run	29 9	32 6	35 6
Moulded cornice 18 in. x 9 in. ...	„	75 0	81 3	84 6
Weathered and throated cills :				
9 in. x 3 in.	„	18 9	20 0	21 7
12 in. x 6 in.	„	37 6	39 1	42 0
Weathered and throated copings:				
12 in. x 3 in.	„	20 0	22 0	23 0
14 in. x 6 in.	„	40 0	45 0	46 6
Plinth rubbed top and face size :				
4½ in. x 9 in.	„	20 6	22 9	22 0
Plain steps, size 12 in. x 6 in. ...	„	—	—	37 6
„ „ „ 14 in. x 2 in. ...	„	—	—	17 6
Riser, size 2 in. x 4 in. ...	„	—	—	8 6
2 in. Sawn paving edges squared in random sizes	Yd. sup.	—	—	103 0
Supplied only :				
Templates and cover stones coped edges	Ft. cube	—	—	35 3

ROOFER

		Yd. sup.
		s. d.
Bituminous built-up roofing in two layers of felt, the first layer 45 lb. and the second 55 lb. to BS 747, covered with limestone or granite chippings n.e. ¼ in. thick		10 6
All as above but in three layers, the first and second layers in felt 45 lb.		14 6

	Steel Tees at	
	2 ft. 0½ in. centres	4 ft. 0½ in. centres
	s. d.	s. d.
2 in. compressed straw building slabs in standard sizes fixed complete with 18G steel tees with fixing clips to steel structure to form roof decking :		
Areas of 50–100 yds. sup.	29 0	22 4
„ 101–250 „	28 0	21 9
„ 251–750 „	27 3	21 3
„ Over 750 „	26 5	20 3
If 16G steel tees are used—Add to above ...	1 5½	9

Welsh slating	Per square		
	16in.x8in.	18in.x10in.	20in.x10in.
	s. d.	s. d.	s. d.
Laid with 3 in. lap and 2 zinc nails each slate	391 0	420 0	519 0
Additional labours:			
Top edge cutting... ... Ft. run	10	9½	9
Square abutment do. ... „	10	9½	9
Double course at eaves... „	1 6	1 4	1 3
Raking, cutting and waste „	1 0	11½	11
1½ in. x ¾ in. slate battening for last ... ... Per sq.	39 9	36 0	32 3

Roof Tiling	Per square		
	Berkshire hand-made	Stafford machine made	Concrete Tiles
	s. d.	s. d.	s. d.
Roof tiling with 10½ in. x 6½ in. tiles laid to a 4 in. gauge, every fourth course fixed with two galvanised nails	270 0	260 0	167 6
1 in. x ¾ in. tile battening for last	43 0	43 0	43 0
Additional labours:			
Top edge cutting ... ... Ft. run	11	10	9
Square abutments do. ... „	11	10	9
Raking cutting to hips ... „	1 1	1 0	11
Eaves course ... ... „	1 1	1 0	11
Half-round ridge and hip tiles ... „	3 3	3 1	2 11

CARPENTER AND JOINER

	Ft. cube			
	Plates	Joists	Rafters & Partitions	Roof trusses
	s. d.	s. d.	s. d.	s. d.
Softwood carcassing, including all waste, nails, hoisting and fixing	18 4	21 8	25 0	29 3

	Per square		
	¾ in.	1 in.	1¼ in.
	s. d.	s. d.	s. d.
Boarding and Flooring: (Softwood):			
Rough boarding to flats and roof... ...	139 0	178 0	217 0
Softwood plain edge flooring cleaned off	171 0	193 0	224 0
Tongued and grooved flooring cleaned off	187 0	217 0	263 0

		s. d.
Extra for 2 in. x 3 in. average firrings	Per sq.	89 0
Herringbone strutting to 2 in. x 8 in. joists	Ft. run	2 0
1 in. gutter boarding and bearers	Ft. sup.	4 2
Raking, cutting and waste on 1 in. flooring	Ft. run	10
Composition Boards, etc.:		
⅛ in. hardboard to BS 1142 fixed to vertical battens	Yd. sup.	7 1
½ in. insulation board to BS 1142 do. do.	„	7 3
1 in. woodwool slabs fixed to flat or sloping soffits	„	10 0
2 in. compressed straw building slabs in standard sizes fixed to wood bearers to flat or sloping surfaces in quantities of 101 to 250 yds. super	„	15 5
¼ in. flat asbestos sheeting fixed vertically	„	11 6

Wood Block Flooring:		s.	d.
1 in. nominal West African mahogany flooring laid herringbone pattern in mastic...	Yd. sup.	36	0
1 in. do. Agba	,,	36	0
1 in. do. Sapele	,,	38	0
1 in. do. Beech	,,	41	0
1 in. do. Rhodesian Teak	,,	54	6

Extra for preparing and polishing 2/3 yd. sup.

	Sectional area		
	n.e. 4 in.	*4–6 in.*	*ex. 6 in.*
Skirtings:	s. d.	s. d.	s. d.
Softwood skirting with rounded or moulded edge, planted on including all labours in short lengths, mitres, etc., per in. in sectional area	4	3½	3

Labours over 6 in.—Mitres = 1 ft. run. Return mould ends = 1 ft. 6 in. run
Sawn grounds nailed 3½d. ft. run. If plugged + 7d. ft. run.

	Ft. super	
	Large sqrs.	*Small sqrs.*
Sashes and Frames: (Softwood):	s. d.	s. d.
1¼ in. rebated, rounded or moulded fixed	4 0	6 3
2 in. ,, ,, ,, ,, ...	4 5	6 6
Add for hanging on butts ... ... each	3 0	3 0
Double-hung sashes and frames with oak cills, purpose-made and not less than 1 doz. in each order:		
Quantities under 1 doz.—add up to ½ according to quantity. (Average size 4 ft. x 5 ft.)	11 9	15 9

Extra cost of boxed mullions 1s. 1d. ft. sup.
Extra for hanging sashes with lines, weights and axle pulleys 50s. each.

	Ft. super			
	1¼ in.	*1½ in.*	*1¾ in.*	*2 in.*
Doors: (All-purpose-made) (Softwood)	s. d.	s. d.	s. d.	s. d.
Softwood skeleton framed with hardboard flush both sides (standard internal pattern)	4 0	4 5	4 10	5 4
Framed, ledged and braced	—	5 7	6 9	7 0
Four panel square framed both sides	5 4	6 1	7 3	7 6
Add for each side moulded on last ...	6½	6½	6½	6½
do. flush framed	1 1	1 2	1 4	1 4
do. bead and butt do. ...	1 4	1 5	1 7	1 7
do. bolection moulded do. ...	1 7	1 7	1 7	1 7
do. raised and fielded do. ...	—	2 6	2 6	2 6

Rebated and beaded meeting stile 4d. ft. run.
Dwarf doors add up to 50 per cent. according to size.

	Sectional area		
	n.e. 6 in.	*6-12 in.*	*ex. 12 in.*
Window and Door Linings and Frames:	s. d.	s. d.	s. d.
Softwood linings per inch of sectional area	5	4½	4
Add for cross-tongueing	—	1½	1
Frames, including rebating and once moulded or equivalent of two run labours, per sectional inch	4½	3¾	3½

Transomes and cills plus 10 per cent. on frames.
Additional run labours plus 1½d. per ft. run.

	Per ft. run			
	Sectional area			
	1 in.	*2 in.*	*4 in.*	*6 in.*
Softwood Bearers, Fillets and Mouldings, etc.:	s. d.	s. d.	s. d.	s. d.
Wrot grounds, bearers, fillets, etc.	5	7¾	1 0	1 4½
Mouldings, picture rails, architraves, etc.	5½	8¼	1 0	1 5
Framed legs and bearers or similar	10	1 0	1 5	2 0
Glazing heads, mitred and bradded	6½	9½	—	—
Add for plugging	6½	6½	6½	6½
Add for brass cups and screws ...	2½	2½	2½	2½

	Thickness			
	¾ in.	*1 in.*	*1¼ in.*	*1½ in.*
Shelving (Softwood):	s. d.	s. d.	s. d.	s. d.
Slat shelving 2 in. wide spaced 1 in. between ... ... Ft. sup.	2 2	2 6	3 0	3 5
9 in. shelving... ... ... Ft. run	2 3	2 7	3 2	3 10
Shelving over 9 in. wide ... Ft. sup.	2 10	3 2	3 10	4 7

1 in. x 2 in. chamfered bearers in short lengths, plugged, each 2s. 6d.

	Ft. super	
	1 in. treads	*1¼ in. treads*
Staircases (Softwood):	s. d.	s. d.
Treads and risers with moulded nosings, glued, blocked and bracketed on carriages	6 10	7 9
Cross-tongued winders	9 0	10 3

		s.	d.
Strings, framed	Ft. run	5	3
Housings for treads and risers	Each	3	4
1 in. x 1 in. sq. balusters framed each end on rail ...	,,	4	6
3½ x 3½ in. sq. framed newel	,,	5	8
Mahogany handrail, average 3 in. x 3 in.	Ft. run	10	3
,, ,, ramped	,,	28	6

FIXING ONLY IRONMONGERY

All to Softwood:	*Each* s. d.		*Each* s. d.
Barrel bolts	2 0	Rim locks	5 9
Flush bolts	7 0	Mortice locks	12 1
Sash fasteners	3 9	Overhead door springs...	16 0
Casement fasteners ...	2 6	Patent floor springs and oil	40 0
Cupboard locks	5 6		

FOUNDER AND SMITH

Fabricated steelwork of basis section including hoisting and fixing at various levels:		s.	d.
Rolled steel joists	per cwt.	93	0
Compound girders	,,	99	6
Stanchions	,,	105	9
Compound stanchions	,,	111	0
In roofwork—trusses and purlins	,,	127	6
(Average prices, not for awkward work)			
Cleats, brackets, packing pieces, etc., in connections, including rivets and bolts	,,	151	0
Wrot iron framed cat ladders	,,	155	0
	to	175	0

PLUMBER

	Per ft. run		
	3 in.	*4 in.*	*5 in.*
Cast iron rainwater goods: (Under 5 cwt. lots):	s. d.	s. d.	s. d.
Half-round gutter jointed in red lead and bolted and fixed with iron brackets	3 5	4 1	4 11
Extra for stop ends ... ... each	2 7	3 2	4 3
do. angles or outlets ... ... ,,	6 3	6 7	7 9
O.G. gutter of ⅛ in. metal fixed as above	3 11	4 6	5 3
Extra for stop ends ... ... each	2 11	3 6	4 8
do. angles or outlets ... ... ,,	7 1	7 3	8 9
	2 in.	*3 in.*	*4 in.*
Rainwater pipe jointed in red lead and tow fixed to brickwork with pipe nails and distance pieces: ⅛ in. metal	4 7	5 2	6 9
Extra for shoes ... ... each	5 6	7 6	10 0
do. bends ... ... ,,	6 2	8 9	11 6
do. junctions ... ... ,,	8 5	11 10	15 6
Cast iron soil and waste pipes: (Under 5 cwt. lots):	*2 in.*	*3 in.*	*4 in.*
Soil, waste or ventilating pipes with caulked joints fixed to brickwork with pipe nails and distances pieces: 13/64 in. metal	6 7	7 8	10 1
Extra for bends ... ... each	14 7	17 3	21 1
do. junctions... ... ... ,,	18 2	25 0	31 6
do. oval access door to any fitting ,,	16 6	16 6	21 3
Extra cost for type 'E' holderbat fixing and cutting and pinning to brickwork ft. run	1 8	1 9	1 9½

	Soakers	Flats	Gutters, valleys, etc.	Flash-ings	Stepped Flash-ings
External leadwork : (Over 1 ton) :	s. d.	s. d.	s. d.	s. d.	s. d.
Milled lead and labour in per cwt.	140 7	168 0	181 3	187 10	199 9

Labours, etc. : Double welt	ft. run	1 1
Copper nailing : Open	„	5
Close	„	1 2
Soldered seam	„	7 0

	2 *in.* x 10 *lb.*	3 *in.* x 15 *lb.*	4 *in.* x 19 *lb.*
Lead pipes : (Over 1 ton) :	s. d.	s. d.	s. d.
Soil, waste and ventilating pipes, fixed to walls with plain lead tacks and brass screws ... ... per ft.	11 1	14 6	18 7
Extra for : Lengths under 4 ft. ... „	3 4	3 10	5 0
Bends ... ... No.	13 9	26 0	27 0
Wiped soldered joints ... ... „	23 8	31 7	35 7
„ branch joints ... ... „	27 4	41 0	45 3

	Per ft. run					
	½ *in.*	¾ *in.*	1 *in.*	1¼ *in.*	1½ *in.*	2 *in.*
Lead pipes including running joints :	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Main in trench ...	3 6	5 2	7 9	9 7	12 2	17 9
do. fixed with hooks	4 5	6 2	9 0	11 3	14 0	19 0
Service and do. ...	3 7	5 1	7 2	8 7	10 10	14 1
Waste and do. ...	2 11	4 2	6 1	7 2	8 10	11 4
Extra for lengths under 4 ft. ...	11	1 2	1 9	1 11	2 4	2 10
Soldered stop ends ... ... No.	2 9	3 4	4 1	5 0	5 8	7 4
do. joints to fittings ... „	7 0	10 0	12 0	14 3	17 10	21 8
do. branch joints... ... „	7 8	11 0	13 2	15 8	19 7	23 10
Brasswork :						
Union with red lead joint to iron and soldered joint to lead ... ... „	12 10	16 3	20 3	24 2	30 4	43 6
Stop-cock and soldered joints ... „	22 2	32 2	45 7	71 10	92 11	170 9
Bib-cock do. „	18 6	25 7	—	—	—	—
Ball-valve do.... „	18 0	31 10	45 3	73 5	92 1	—
Steel tubing :						
Galvanised tubing Class C laid in trench	2 7	2 9	3 2	4 6	6 0	7 1
do. Class B fixed to walls, etc. ...	2 10	3 4	3 8	4 10	6 8	7 8
Extra for bends No.	5 6	6 3	8 4	10 9	12 9	18 10
Tees „	6 3	7 5	9 0	11 11	14 0	20 6
Red lead joints „	4 0	4 3	4 8	5 2	6 0	6 8
Copper tubes and fittings : gauge	19	19	18	18	18	17
Tubes and fixing to walls	2 7	3 4	4 6	5 5	6 4	9 2
Extra for lengths under 4 ft. ...	7	9	11	1 0	1 3	1 6
Brass capillary type fittings :						
Couplings — copper to copper ...	3 8	4 4	6 9	8 9	11 2	15 3
Bends— do. ...	5 10	7 1	8 11	11 7	17 2	32 3
Tees— do. ...	8 7	9 11	14 2	19 2	26 3	36 4
Stop cocks	23 7	33 1	60 2	101 2	152 3	250 4
Tank connectors ...	4 9	5 4	8 1	10 2	14 3	18 4

PLASTERER

		s. d.
Expanded metal lathing ⅜ in. mesh 24 gauge ... ... (not including hangers for suspended work)	Yd. sup.	9 0
Lime Plastering : Render, float and set	„	10 5
Sirapite Plastering: Render in Portland Cement, Lime and Sand and set in Sirapite	„	8 1
Sirapite Plastering: Render and set in Sirapite plaster to manufacturer's instructions	„	8 5
Paristone Plastering : do. do.	„	8 8
Carlite Plastering : do. do.	„	9 8
Portland Cement : Plain face trowelled smooth ...	„	10 5
Keenes: Render in cement and lime and set in Keenes	Yd. sup.	11 0
Extra for dubbing out ¼ in. thick 1/11, ½ in. thick 3/11		
⅜ in. Plasterboard and setting coat	„	9 4
Narrow widths: Up to 3 in. wide add 300 per cent. Do. 3-6 in. do. 200 per cent. Do. 6-12 in., add 75 per cent.		
Labours : Arris 5½d. Fair edge 6½d. Quirk 10d.		
Plaster Moulded Cornices : 6 in. girth and under ...	Ft. run	3 3
Over 6 in. girth, add 3½d. per in.		
Tyrolean Rendering on and including Portland Cement and Sand backing	Yd. sup.	13 3
Wall Tiling : 6 in. x 6 in. white glazed ¼ in. thick ...	„	46 0
Extra for rounded angle or birdsbeak	Ft. run	4½
do. rounded edge tile	„	5½

GLAZIER

	Wood sashes with beads or putty
Clear sheet glass ordinary quality :	s. d.
18 oz.	1 5½
24 oz.	1 8¼
26 oz.	1 11
32 oz.	2 4
Obscured glass :	
⅛ in. Figured rolled White group 1	1 11
„ „ „ group 2	2 3
„ „ Standard tints	2 7¼
⅛ in. Pinstripe, Hammerstripe, Reeded, Reedlyte and luminating group 3	2 4½
¼ in. Wired Cast	2 8½
¼ in. Georgian Wired Cast	2 8½
¼ in. Polished Plate Glass, G.G. Quality :	
In plates not exceeding 2 ft. sup.	6 9
„ „ „ 5 ft. sup.	7 9
„ „ „ 45 ft. sup.	9 9
„ „ „ 100 ft. sup.	9 8
Extra on all above :	
For glazing with screw beads ft. sup. ... ... (Excepting polished plate over 12 ft. super on which no extra is charged)	6
For glazing with metal sashes with putty	1
Glazing bedded in washleather	Ft. run 9

PAINTER

		s. d.
Limewhiting : Prepare and two coats on brick ...	Yd. sup.	1 3
Whitening : Prepare and two coats on plaster ...	„	1 6
Washable distemper: Prepare and two coats on plaster	„	2 1
Emulsion paints : Prepare and two coats on plaster ...	„	3 3

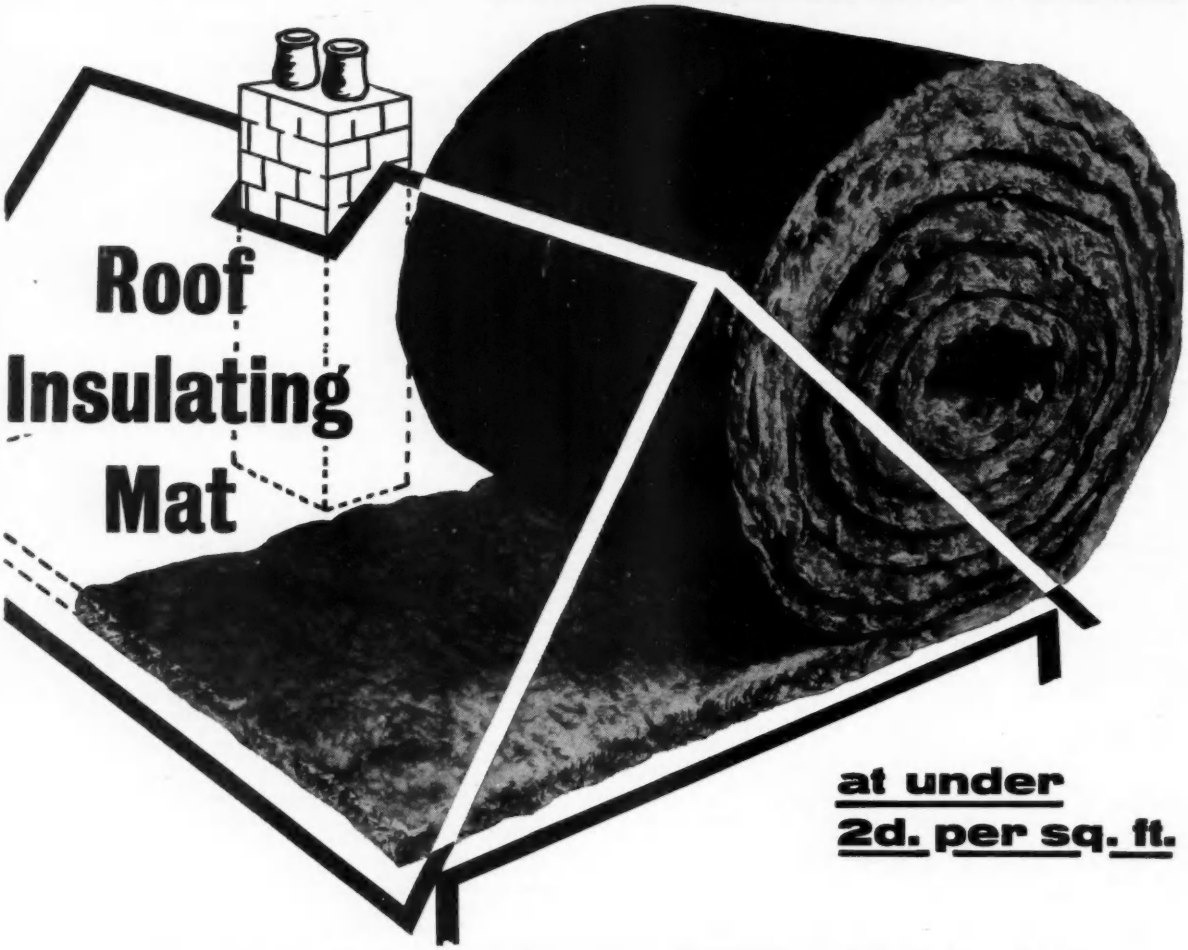
Painting with oil colours :	*Yd. super* 1 *coat*	2 *coats*	3 *coats*
	s. d.	s. d.	s. d.
Prepare and paint on plaster	2 4	4 5	6 7
On Steel :			
Plain surfaces	1 11	3 9	5 8
Roof trusses...	2 5	4 9	7 2
Metal casements divided into squares ...	3 6	7 0	10 6
do. divided into large squares ...	2 9	5 3	7 10
Opening edges ... ... Each	8	1 3	1 10
Small pipe ... ... Yd. run	6	1 0	1 5
Rainwater pipe ... ... „	1 0	1 11	2 9
Gutter ... ... „	1 4	2 6	3 8

	Knot prime and stop	*Add for each extra coat*
On Woodwork :	s. d.	s. d.
General surfaces ... ... Yd. sup.	2 10	2 4
On work not exceeding 3 in. girth Yd. run	4½	3½
Add to last for every additional 3 in. in girth	3½	2¾
Sash squares on one side ... ... Doz.	5 9	4 9
Large „ „ „ ... ... „	8 10	8 4
Opening edges ... ... No.	9	8

		s. d.
Oiling Hardwood : Two coats with linseed oil... ...	Yd. sup.	1 5
Creosote : Two coats on woodwork	„	1 7
Polishing—New Work :		
Staining and wax polishing hardwood	Ft. sup.	1 1½
Staining, bodying in and full french polishing on hardwood	„	2 7
Old Work previously polished :		
Preparing old work and repolishing	„	1 2
Stripping, preparing and repolishing	„	3 2
Papering :		
Preparing, sizing and hanging lining paper	per piece	11 0
do. do. Wallpaper, p.c. 10s.	„	20 1

Slagbestos

SPUN MINERAL WOOL



at under 2d. per sq. ft.

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ODOURLESS

ROT PROOF

EASY TO HANDLE

VERMIN PROOF

FLEXIBLE

McNEILL'S SLAGBESTOS MINERAL WOOL ROOF INSULATING MAT is a cheap and efficient roof insulation at under 2d. per sq. ft.—which means that the average house could be insulated for under £5 and achieve a 'U' value of 0.20.

WRITE FOR DETAILS—It's worth knowing about.

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McNEILL'S

SLAGBESTOS

F. McNEILL & CO. LTD. · 10 LOWER GROSVENOR PLACE · LONDON S.W.1 · VICtoria 6022

THE BUILDER CURRENT PRICES

THE information given on these pages has been specially compiled for *The Builder* and is copyright. It is the intention that the details given should indicate fair average prices of materials, not necessarily the highest or the lowest. The prices apply to large quantities of materials loaded at works, delivered at London Stations or at site in London Area as stated. Prices for smaller quantities ex merchant's warehouse will necessarily be higher so as to include the stocking and handling costs involved. It is recommended that the prices of materials should be confirmed by inquiry from suppliers and merchants.

AGGREGATES AND SAND

Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.

		£	s.	d.
Pit Ballast	per yd.	1	5	5
Pit Sand	,,	1	3	8
Washed Sand	,,	1	6	9
¾ in. Shingle	,,	1	4	3
¾ in. Broken Brick	,,	1	0	9
Pan Breeze	,,	1	6	0
Fine or Coarse Foamed Slag Aggregate	per ton	3	8	0

2 yds. of fine and 2.6 yds. of coarse per ton.

CEMENT, etc.

Including non-returnable jute sacks or paper bags.

		£	s.	d.
Best British Portland Cement. Standard Specification delivered Charing Cross area. 8-ton loads and upwards, site	per ton	5	16	0
Below 8 tons down to 4 tons, site	,,	6	8	0
Below 4 tons down to 2 tons, site	,,	6	12	0
Below 2 tons down to 1 ton, site	,,	6	14	0
Rapid-Hardening Cement in 8-ton loads and upwards to site	,,	6	6	6
Below 8 tons down to 4 tons, site	,,	6	18	6
Below 4 tons down to 2 tons, site	,,	7	2	6
Below 2 tons down to 1 ton, site	,,	7	4	0

Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices.

Sulphate Resisting Cement. 32s. 6d. per ton on ordinary cement prices.

Red, Buff or Khaki Colocrete in 8-ton lots	,,	8	16	0

Other colours according to colour.

In 4-ton lots from 313s. 3d. to 783s. 3d. per ton.

White Portland Cement	,,	14	0	9
Under 1 ton	per cwt.		17	0
417 Cement (Ultra Rapid Hardening) in 8-ton lots and upwards	per ton	7	8	6

Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement.

Cullamix Tyrolean Finish, £11 13s.3d. to £14 8s.3d. (1-ton loads and upwards).

Ciment Fondu and Lightning Brands High Aluminous cement, 6-ton lots and up	,,	15	14	6
Stourbridge Fireclay, 6-ton loads at Railway Depot, London	,,	6	19	0
Stourbridge Fireclay, 6-ton loads (London sites)	,,	7	12	0
Moler Mortar Powder for Flue Bricks (London sites)	per cwt.	1	6	0

BRICKS

Full Loads		£	s.	d.
First Hard Stocks	per 1,000	16	19	6
Second Hard Stocks	,,	14	18	6
Mild Stocks (Kiln Burnt)	,,	11	5	0
Mild Stocks	,,	11	0	0

All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job.

2½ in. Nominal Fletton Bricks to sites in W.C. district :				
Commons	,,	6	10	0
Cellular Commons	,,	6	10	0
Keyed do.	,,	6	12	0
Rustics	,,	8	12	0
Cellular Rustics	,,	8	12	0
Single Bullnose Commons	,,	8	14	6
Sandfaced	,,	9	12	0
Tuscans	,,	10	7	0
Saxons	,,	10	15	0
Golden Buffs	,,	11	2	0
Dapple Light Facings	,,	11	9	6
Heather Facings	,,	11	5	0
Best Blue Pressed Staffs (London sites)	,,	34	0	6
do. Bullnose (London sites)	,,	34	19	6
Blue Wire Cuts (London sites)	,,	29	19	6
Midhurst Lime Bricks (London sites)	,,	11	16	6
Uxbridge Whites (London sites)	,,	12	3	6
Special Purpose Sandlime Bricks (London sites)	,,	9	2	0
Best Stourbridge Fire Bricks :				
2½ in. (London sites)	,,	33	6	9
3 in. (London sites)	,,	40	0	0
2½ in. Moler Flue Bricks (London sites)	per 1,000	31	0	0
2½ in. Machine-made Sandfaced Red Facings (London sites)	,,	18	19	0
2½ in. Machine-made Multi Red Facings (London sites)	,,	19	4	0
2½ in. Hand-made Sandfaced Red Facings (London sites)	,,	20	17	6
2½ in. Hand-made Sandfaced Multi-Colour Facings (London sites)	,,	20	17	6
Hand-made Sandfaced Cherry Red Facings, Berkshire district (London sites)	,,	21	5	0
Hand-made Sandfaced Multi-Colour Facings, Berkshire district (London sites)	,,	21	5	0
Kubber Bricks for gauged arches (London sites)	,,	52	5	0
2½ in. Surrey Clamp Burnt Multi Stock Facings (London sites)	,,	16	15	0
2½ in. Surrey Kiln Burnt Multi Stock Facings (London sites)	,,	18	7	6
Glazed Bricks (London sites), White, Ivory, Brown:				
Stretchers	,,	64	0	0
Headers	,,	63	0	0
Quoins, Bullnose and 4½ in. Flats	,,	80	0	0
Double Stretchers	,,	85	0	0
Double Headers	,,	77	10	0
One side and two ends	,,	87	0	0
Two sides and one end	,,	89	10	0
Splays and Squints	,,	83	0	0

Cream and Buff, £3 extra over White. Other colours, hard glaze, £8 10s. 0d. extra over White. All above prices plus 47½% for Best quality and plus 47½% less 10% for Second quality.

PARTITION SLABS, etc.

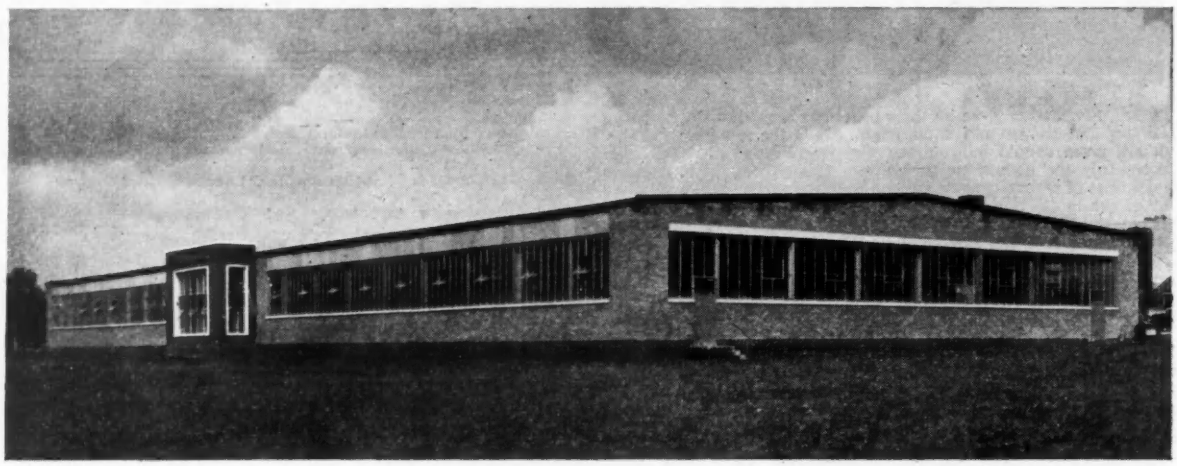
Delivered Central London Area. (W.C. District).

Hollow Clay Partition Blocks (Keyed) Minimum lorry loads		£	s.	d.
*2½ in. 140 yds.	per yd. sup.		4	7
Building Blocks (Keyed)				
*3 in. (6 cavity) 110 yds.	,,		5	9
*4 in. (6 cavity) 90 yds.	,,		7	3
6 in. (8½ in. × 5½ in.) 1,250 blocks	per 1,000	28	9	0

* Half blocks at no extra charge.

Clinker Concrete				
2 in. 100 yds.	per yd. sup.		4	0
2½ in. 85 yds.	,,		4	7
3 in. 75 yds.	,,		5	8
4 in. 55 yds.	,,		7	0
Cranham Terra Cotta				
2 in.	,,		7	5
2½ in.	,,		8	4
3 in. Load bearing quality	,,		9	6
4 in. do. do	,,		11	6
Moler Partition Blocks				
2 in. 150 yds.	,,		12	9
2½ in. 120 yds.	,,		13	9
3 in. 100 yds.	,,		14	9
4 in. 90 yds.	,,		17	0
Lightweight Concrete Building and Partition blocks of Various Sources of Manufacture				
2 in. 100 yds.	per yd. sup.		5	4
2½ in. 80 yds.	,,		6	5
3 in. 65 yds.	,,		7	5
4 in. 50 yds.	,,		9	4
4½ in. 44 yds.	,,		10	2
6 in. 33 yds.	,,		14	5
Thermalite-Ytong Partition Blocks				
2½ in. 144 yds.	,,		7	0
Thermalite-Ytong Load-Bearing Insulating Blocks				
3 in. 120 yds.	per yd. sup.		8	5
4 in. 90 yds.	,,		11	0
5 in. 72 yds.	,,		13	9
6 in. 60 yds.	,,		16	6
8½ in. 42 yds.	,,	1	3	8
Floor Blocks and Filler Tiles				
Floor Blocks 12 in. × 12 in. delivered in full lorry-loads :				
3 in.	per 1,000	35	14	0
4 in.	,,	38	9	0
5 in.	,,	46	1	0
6 in.	,,	52	12	0
7 in.	,,	64	12	0
8 in.	,,	75	9	0
9 in.	,,	83	2	0
10 in.	,,	92	0	0
Filler Tiles in multiples of 10 tiles per 1,000 multiples :				
12 in. × 3 in. × ¾ in.	,,	43	13	0
12 in. × 4 in. × ¾ in.	,,	75	7	0
10 in. × 5 in. × ¾ in.	,,	75	7	0

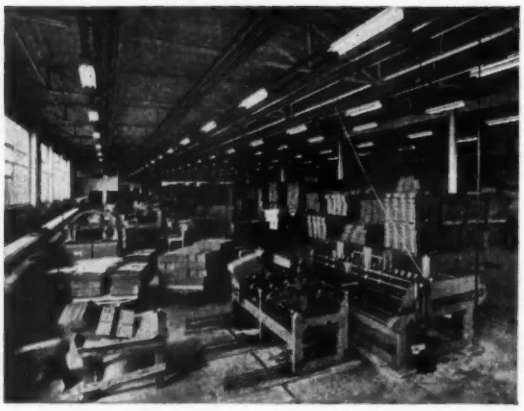
MARRIOTTS OF THE MIDLANDS complete



The Rigid Containers Ltd. factory *Architects: Messrs. Cook, Culling & Illingworth (Meeting Lane, Kettering)*

£70,000 factory in 26 weeks

Interior views of the factory



A date for the completion of this £70,000 factory for Rigid Containers Ltd. in Desborough was fixed right at the outset of the contract. This date was adhered to and, as usual, Robert Marriott Ltd. completed the job dead on time.

Here then is one more successful example of Marriott's high-speed building service for industry whereby contracts are carried out, and both a fixed price and a guaranteed schedule may be agreed before the contract starts.

The one critical factor is for the Architects to bring Marriotts in at the early planning stage. In this way the client's requirements are rapidly interpreted into a building proposition, time spent on pre-planning and organisation is cut to a minimum, and the job gets done in record time.

Contract with confidence with—

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MARRIOTT
LIMITED

Builders and Contractors
MIDLAND WORKS · RUSHDEN · NORTHAMPTONSHIRE
Telephone: Rushden 3331

STONEWARE DRAIN PIPES, etc.

Glazed Stoneware Standard List (November, 1956).

		4 in.	6 in.	9 in.
Pipes, 2 ft. lengths	per ft.	1/8	2/6	4/6
Bends	each	5/–	7/6	20/3
Junctions	„	8/4	12/6	27/–
Gullies with 4 in. outlets	„	12/6	13/9	22/6

The following are the percentages to be added to the Standard List (November, 1956) prices delivered London Area.
Delivered ex Merchants Wharf or Depot.

	Over 2 tons	Over 100 pieces Under 2 tons	Under 100 pieces Under 2 tons
Best Quality	NET	+22½%	+27½%
BSS Best Quality	+10 % NET	+10 %+22½%	+10 %+27½%
Tested Quality	+37½% NET	+37½%+22½%	+37½%+27½%
BSS Tested Quality	+47½% NET	+47½%+22½%	+47½%+27½%

		£	s.	d.
3 in. Land Drain Pipes (in 12 in. lengths)	per 1,000	12	10	6
4 in. do. do.	„	16	16	0
6 in. do. do.	„	34	10	0
9 in. do. do.	„	64	19	0

DAMP COURSE

		£	s.	d.
Hessian base bitumen 7 lb. per yd. sup. in 24 ft. rolls cut to wall widths in lots of £6 value and over delivered London area	per yd. sup.		3	11
Asbestos base do. 7 lb. per yd. sup.	do. do. „		5	5
Lead lined bitumen do. 9½ lb. per yd. sup.	do. do. „		12	4½
18 in. × 9 in. British damp course slates	per 1,000	43	8	11
14 in. × 9 in. do. do.	„	32	8	2
9 in. × 9 in. do. do.	„	18	18	9
18 in. × 4½ in. do. do.	„	19	19	9
14 in. × 4½ in. do. do.	„	15	18	3
9 in. × 4½ in. do. do.	„	10	14	3

STONE

		£	s.	d.
Bath Stone				
Monks Park	per ft. cube		10	3
St. Aldhelm Box Ground	„		11	6
Delivered in railway trucks at South Lambeth B.R. Western Region.				
Doulting Stone Random Blocks. Delivered London area	„		10	10
Beer Stone. Delivered London area	„		10	6
Portland Stone—				
Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region	„		9	10
Yorkshire Stone—Blue Robin Hood Quality. Delivered to site London in 6-ton lots.				
9 in. × 3 in. Rubbed, weathered, throated and stolled cills	per ft. cube	4	5	10
12 in. × 6 in. do. do. do.	„	3	1	2
12 in. × 3 in. Plain coping, twice throated	„	2	7	6
12 in × 3 in. Weathered and twice throated coping	„	3	3	3
14 in. × 6 in. do. do. do.	„	2	17	0
4½ in. × 9 in. Plinth rubbed on top and face	„	2	11	0
3 in. sawn two sides Slabs, random sizes	per ft. sup.		9	1
Templates and Cover Stones, 3 in., 4 in. and 6 in. thick, edges coped for rendered brickwork	per ft. cube	1	11	3
do. do. fair one edge for fair faced brickwork	„	1	17	0
Hard York—				
12 in. × 2 in. Square Steps, rubbed on top and edge	per ft. run		11	0
14 in. × 3 in. Round-nosed Steps, rubbed on top and front	per ft. cube	2	18	3
12 in. × 6 in. Plain Steps, rubbed top and front	„	2	11	0
2 in. Rubbed and Jointed Paving, given sizes	per ft. sup.		10	3
2 in. Sawn Paving, edges squared, in random sizes	per yd. sup.	3	12	0

TILES AND PANTILES

Delivered London area by road in 6 tons or over per 1,000.

	£	s.	d.
Machine-made Pantiles and French pattern Tiles from Lincolnshire district	35	16	6
Hand-made Pantiles Berkshire district	64	10	0
Hand-made Double Roman Bridgwater district	78	2	9
Hand-made 10½ × 6½ tiles Berkshire district	18	0	0
Machine-made 10½ × 6½ Staffordshire district	17	0	0
Hand-made Hip and Valley tiles per doz.	1	13	0
Machine-made Hip and Valley tiles do.	1	12	0
Concrete tiles 10½ × 6½	8	10	0
do. Interlocking (49S)	19	16	6

NOTE.—Breakage in transit, purchasers' responsibility.

SLATES

First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate station. Per 1,000 actual.

	£	s.	d.
24 × 12	160	4	0
22 × 12	126	15	0
22 × 11	114	15	0
20 × 12	107	5	0
20 × 10	105	0	0
18 × 10	71	5	0
18 × 9	62	14	0
16 × 10	54	15	0
16 × 8	42	18	0

NOTE.—Breakage in transit, purchasers' responsibility.

TIMBER

		Ex Wharf	per	£	s.	d.
Softwood						
Joinery quality		do.	standard	£115 to £140		
Carcassing quality		do.	„	£94 — £98		
1 in. Tongued and Grooved Flooring		do.	„	£112	0	0
Hardwood				£	s.	d.
Mahogany—African S.E.		do.	per ft. cube	1	17	6
do. Honduras S.E.		do.	„	3	5	0
Oak European S.E.		do.	„	2	10	0
do. Japanese S.E.		do.	„	3	0	0
do. English Logs sawn		do.	„	2	0	0
Teak 8 in. average S.E.		do.	„	3	17	6
Walnut African Logs sawn		do.	„	1	2	6
Plywood			per			
6 mm. (¼ in.) Birch Plywood B/BB			100 sq. ft.	4	3	6
6 mm. Israeli Gaboon do. B/BB exterior grade WBP (AX100)			„	4	5	3
18 mm. Birch Blockboard			„	9	7	0
¾ in. Douglas Fir Plywood 96 in. × 48 in. Exterior grade WPB (AX100) solid two sides			„	9	3	0

DOORS (in Lots I-II)

		£	s.	d.
Delivered London area.				
1¼ in. 4 Horizontal Panel. Pattern 4 in. deal				
2 ft. 0 in. × 6 ft. 6 in.	each	1	16	0
2 ft. 3 in. × 6 ft. 6 in.	„	1	17	6
2 ft. 6 in. × 6 ft. 6 in.	„	1	18	6
2 ft. 9 in. × 6 ft. 6 in.	„	2	0	6
2 in. do. but top panel open. Pattern 4 × G in deal				
2 ft. 6 in. × 6 ft. 6 in.	„	2	9	0
2 ft. 9 in. × 6 ft. 6 in.	„	2	11	6
2 in. 2 Panel top panel open. Pattern 2 × G in deal				
2 ft. 6 in. × 6 ft. 6 in.	„	2	3	0
2 ft. 9 in. × 6 ft. 6 in.	„	2	5	0
1¼ in. Plywood Faced Flush Doors to BS459, Part 2A				
2 ft. 0 in. × 6 ft. 0 in.	„	1	12	3
2 ft. 0 in. × 6 ft. 6 in.	„	1	12	3
2 ft. 3 in. × 6 ft. 6 in.	„	1	13	9
2 ft. 6 in. × 6 ft. 6 in.	„	1	15	3
2 ft. 9 in. × 6 ft. 6 in.	„	1	18	0
1¼ in. Hardboard Faced Flush Doors				
2 ft. 0 in. × 6 ft. 0 in.	„	1	5	6
2 ft. 0 in. × 6 ft. 6 in.	„	1	6	0
2 ft. 3 in. × 6 ft. 6 in.	„	1	6	6
2 ft. 6 in. × 6 ft. 6 in.	„	1	8	6
2 ft. 9 in. × 6 ft. 6 in.	„	1	9	6

SUNDRIES

		£	s.	d.
Delivered London area.				
1 in. Wood Wool Slabs 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton)	per yd.		6	2
1½ in. do. (67 yds. to 1 ton)	„		8	0
2 in. do. (52 yds. to 1 ton)	„		9	9½
2½ in. do. (45 yds. to 1 ton)	„		11	3
3 in. do. (39 yds. to 1 ton)	„		12	7½
½ in. imported or home produced insulation Board, quantities over 5,000 sq. ft.	per 100 sq. ft.	2	2	6
¼ in. Hardboard do.	„	1	17	6
⅛ in. do. do.	„	2	4	6
2 in. Compressed Straw Slabs, roofing quality. 6 ft., 8 ft., 9 ft., 10 ft., and 12 ft. × 4 ft.				
50–100 yds.	per yd. sup.		11	4
101–250 yds.	„		10	10
251–750 yds.	„		10	1
Over 750 yds.	„		9	4
2 in. do. for partitions 4d. per yd. cheaper.				
⅛ in. Asbestos Flat Building Sheets	„		4	3½
¼ in. do. do. do.	„		6	0
Roofing Felt 1-ply	„		1	9
do. 2-ply	„		2	2½
Best Scotch Glue in slabs	per ½ cwt.	5	3	9
do. pearl	„	5	3	9
Croid Glue	28 lb.	2	6	0
Impact Adhesive	per gall.	2	12	0
Cut Nails 3 in. (1-ton lots)	per ton	84	10	0
do. 4 in. and up (1-ton lots)	„	81	0	0
Wire Nails 3 in. (4-cwt. lots)	per cwt.	4	2	1
do. 4 in. and up (4-cwt. lots)	„	3	19	3

METALS

STEEL JOIST, ETC.

		£	s.	d.
Basis Joists—				
6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in., 12 in. × 6 in., plain cut to lengths delivered London area	per ton	47	15	0
Extra for sizes				
3 in. × 1½ in. 4 in. × 1½ in.	„		3	10	0
3 in. × 3 in.	„		2	10	0
4 in. × 3 in.	„		2	5	0
10 in. × 4½ in.	„		1	10	0
5 in. × 2½ in. 5 in. × 3 in.	„		1	15	0
4½ in. × 1¾ in.	„		3	5	0
5 in. × 4½ in. 7 in. × 3½ in. 13 in. × 5 in.	„			15	0
6 in. × 3 in. 24 in. × 7½ in.	„		2	0	0
6 in. × 4½ in. 7 in. × 4 in. 8 in. × 4 in.	„		1	5	0
9 in. × 4 in. 10 in. × 5 in.	„				
12 in. × 5 in. 22 in. × 7 in.	„		1	0	0

METALS—*continued*

		£ s. d.
9 in. × 7 in. 10 in. × 8 in. 12 in. × 8 in.		
14 in. × 5½ in. 14 in. × 6 in. 14 in. × 8 in.	per ton	10 0
15 in. × 5 in. 15 in. × 6 in. 16 in. × 6 in.		
16 in. × 8 in. 18 in. × 6 in. 18 in. × 7 in.	"	10 0
18 in. × 8 in. 20 in. × 6½ in. 20 in. × 7½ in.		
Steel angles average price	"	48 15 0
Steel tees average price	"	49 15 0
Fabricated work delivered London—		
R.S. Joists cut and fitted...	"	67 19 0
Compound girders	"	72 14 3
Stanchions	"	78 9 9
Compound stanchions	"	83 4 3
In Roof Work—Trusses and Purlins	"	93 19 6
Average prices not for awkward work.		
Angle cleats and ¾ in., ⅞ in. and 1 in. bolts average price London area	per cwt.	5 10 0

Above prices joists etc. increased by 1·1%.

Ferro-Concrete Bars and Fabric

Mild Steel Ferro-Concrete Bars British manufacture to BSS 785 ex. Mills. 1 in. diameter and upwards delivered nearest London station ... per ton 40 10 0
do. do. ex. London Stock do.
delivered London site ... ... " 49 10 0

Extras—

		£ s. d.
¾ in. diam....	per ton extra	8 12 6
⅞ in. do.	"	6 12 6
1 in. do.	"	4 12 6
1¼ in. do.	"	3 2 6
1½ in. do.	"	1 10 0
¾ in. and ⅞ in. diam.	"	15 0

Above prices mild steel bars increased by 1·1%.

Steel wire mesh reinforcing fabric to BSS 1221A.

		£ s. d.
Ref. No. 106 ... ... 7.88 lbs.	per sq. yd.	5 2½
" " 109 ... ... 4.71 "	"	3 0½
" " 113 ... ... 1.83 "	"	1 8½
" " 122 ... ... 7.32 "	"	4 10½
" " 125 ... ... 4.32 "	"	2 10½

Mild Steel Tubes

Tubes to BSS 1387. Fittings BSS 1740.

Basic List Prices

		¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Tubes	per ft.	9½	10	1/-	1/2½	1/9	2/3	2/8	3/9
Bends	each	1/7	1/9	2/-	2/6	3/8	5/5	6/2	10/7
Elbows, square	"	1/8	1/10	2/2	2/6	3/-	4/4	5/2	8/6
do. round	"	1/10	2/-	2/4	2/10	3/4	4/8	5/8	9/4
Tees	"	2/-	2/2	2/6	3/2	3/8	5/-	6/2	10/2
Crosses... ...	"	4/4	4/8	5/6	6/6	8/2	11/-	13/2	21/-
Sockets, Plain	"	6	6	8	10	1/-	1/4	1/9	2/6
do. Diminished	"	8	10	1/-	1/2	1/6	2/-	2/8	4/-
Backnuts ...	"	4	4	6	7	10	1/-	1/4	2/2

Malleable Fittings

		¼ in.	⅜ in.	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Elbows, round	each	8½	8½	9½	1/2½	1/8½	2/7½	3/6	5/-
Tees	"	9½	9½	1/-	1/4½	2/-	2/9½	4/-	5/6
Crosses... ...	"	1/2½	1/2½	1/4½	2/-	2/9½	3/7½	5/2½	7/2½
Sockets... ...	"	5½	5½	7	9½	1/-	1/7½	2/2½	3/1½
Backnuts ...	"	3	3	3½	4½	5½	7½	10½	1/5½

Discounts from List prices as follows :—

Galvanised Tube—

	Under 1 ton	Over 1 ton	W.I. Fittings	Malleable Fittings
Light	−37½%	−39 %	Light −24½%	Malleable List
Medium	−33½%	−35 %	Heavy −20½%	−14%+40%
Heavy	−25½%	−27½%		
Black—				
Light	−47 %	−48½%	Light −30½%	Malleable List
Medium	−43 %	−44½%	Heavy −26½%	−14%
Heavy	−35½%	−37 %		

C.I. Half-Round Gutters

Delivered London per yd. in 6 ft. lengths.

	Gutters	Nozzles	Stop Ends
3 in.	4/4½	3/10	1/1
3½ in.	4/9	4/2	1/1
4 in.	6/1½	4/9	1/8
4½ in.	6/9	5/4	2/-
5 in.	7/6	5/9	2/4

C.I.O.G. Gutters

Per yd. in 6 ft. lengths :	Gutters	Nozzles	Stop Ends
3 in.	5/7½	5/1	1/4
3½ in.	6/3½	5/1	1/8
4 in.	6/11½	5/4	2/-
4½ in.	7/6	6/1	2/4
5 in.	8/2½	7/-	2/8

C.I. Rain-Water Pipes

	Pipes	Bends	Branches
2 in.	9/4	4/9	6/10
2½ in.	9/4	5/4	9/2
3 in.	10/6	6/8	9/11
3½ in.	11/10	7/10	11/11
4 in.	13/9½	9/6	14/2

L.C.C. Coated Soil Pipes

2 in.	10/7	8/2	9/11
2½ in.	11/2	9/1	12/4
3 in.	12/6½	9/11	14/8
3½ in.	14/−½	12/4	17/1
4 in.	15/11½	13/10	20/3

Above prices for gutters, rain-water and soil pipes for under 5-cwt. lots only. Lots over 5 cwt. see List No. 3300, dated February 1, 1955, plus 32½% and tonnage allowance. 4-ton lots 5%, 2-ton lots 2½%.

L.C.C. Coated Drain Pipes

		£ s. d.
4 in. diameter in 9 ft. lengths	per yd. run	1 11 1
6 in. do. do.	"	2 5 6
4 in. diameter bends	each	1 0 6
6 in. do. do.	"	2 14 9
4 in. diameter branches	"	1 16 6
6 in. do. do.	"	4 7 6

Above prices for any quantity but under 5 cwt. carriage extra.

Pitch Fibre Drain Pipes

		£ s. d.
2 in. diameter in 5 ft., 5 ft. 6 in. or 8 ft. lengths including couplings	per ft. run	1 6½
3 in. do.	"	1 10½
4 in. do.	"	2 6
5 in. do.	"	4 1½
6 in. do.	"	5 0½
4 in. diameter short radius ¼ bends	each	17 9
4 in. do. do. ¼ bends	"	12 11
2 in. diameter 6 ft. radius bends (5 ft. lengths)	"	17 0
3 in. do. do. do.	"	19 8
4 in. do. do. do.	"	1 7 4
5 in. do. do. do.	"	2 4 0
6 in. do. do. do.	"	2 14 6

Above prices for loads of £60 and over.
Loads £25 to £59 19s. 11d. Plus 10%
Loads under £25 ... Plus 15%

Asbestos Rain-Water Pipes and Fittings

All less 17½% discount.		2 in.	2½ in.	3 in.	4 in.
Pipes, 6 ft. lengths	per yd.	4/7	4/10½	5/11	7/10
Shoes	each	3/-	3/3	3/10	5/2
Single Branches	"	4/8	5/6	6/7	9/2
Bends, squares or obtuse ...	"	3/3	3/7	4/8	6/7
Swan Necks, 4½ in. proj....	"	3/7	4/8	5/2	7/3
do. 6 in. do. ...	"	3/10	5/2	5/10	7/10

Asbestos O.G. Gutters and Fittings

		4 in.	4½ in.	5 in.	6 in.
Gutters, 6 ft. lengths ...	per yd.	4/4	4/9½	5/9	6/10½
Drop ends	each	3/6	4/-	4/9	5/5
Stop ends	"	1/1	1/2	1/3	1/5
Angles	"	3/7	4/1	5/-	5/10
Nozzles	"	3/6	4/-	4/9	5/-
Union Clips	"	1/9	2/1	2/6	2/11

Asbestos Half-Round Gutters and Fittings

	per	3 in.	4 in.	4½ in.	5 in.	6 in.
Gutters, 6 ft. lengths	yd.	3/0½	3/7½	3/8½	4/4½	6/1
Drop ends	each	2/6	3/-	3/3	3/7	5/2
Stop ends	"	1/-	1/1	1/2	1/3	1/5
Angles	"	2/10	3/3	3/7	3/10	5/2
Nozzles	"	2/6	3/-	3/3	3/7	5/2
Union Clips ...	"	1/3	1/4	1/5	1/7	2/5

	Per ton basis in London £ s. d.
Iron—Staffordshire Crown Merchant Quality	52 17 6
Mild Steel Bars	47 18 0
Mild Steel Hoops	49 10 0

	Ex Merchant's Stock per ton Two-ton lots £ s. d.
Soft Sheets C.R. and C.A.—	
20 gauge	63 0 0
24 gauge	65 10 6
26 gauge	68 11 0
Galvanised Corrugated Sheets, 6-ft. to 9-ft.—	
20 gauge	70 18 0
24 gauge	74 9 0
26 gauge	79 15 0
Galvanised Flat Sheets C.R. and C.A.—	
20 gauge	72 8 6
24 gauge	75 19 0
26 gauge	81 5 0

ALUMINIUM AND ALUMINIUM ALLOYS

(Base Prices)		£ s. d.
Sheet BS 1740 S1C 18 SWG (36 in. wide)... ...	per lb.	3 0½
Sheet BS 1470 NS3 Utility 18 SWG (36 in. wide)	"	2 11½
Coiled strip BS 1470 S1C 18 SWG (24 in. wide)	"	2 11½
Coiled strip BS 1470 NS3 Utility 18 SWG (24 in. wide)...	"	2 11
Coiled strip high purity, 22 SWG (12 in. wide)	"	3 2
Corrugated sheet BS 1470 NS3 Circular Profile 8 ft. × 32 in. × 20 SWG	per sheet	1 14 1
Corrugated sheet BS 1470 NS3 Industrial Profile 8 ft. × 31½ in. × 20 SWG	"	1 19 10
Corrugated sheet BS 1470 NS3 Mansard Profile 8 ft. × 31½ in. × 20 SWG	"	1 13 1
Extruded section BS 1476 E1C simple moulding	per lb.	2 10½
Extruded section BS 1476 E1C 1 in. diam. round	"	2 8
Extruded section BS 1476 HE19WP simple angle	"	3 2
Extruded section BS 1476 HE19WP 1 in. diam. round	"	3 1
Tubing BS 1471 T1C 1½ in. O/D × 20 SWG ...	"	4 8
Tubing BS 1471 HT19WP 1½ in. O/D × 20 SWG	"	6 3

PLUMBERS' BRASS WORK, etc.

Delivered in London area.

All per dozen	B.S.S. ¼ in.	⅜ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdown bib cocks Crutch head for iron...	87/-	128/-	—	—	—	—
Toilet bib cocks for iron ...	109/-	158/5	—	—	—	—

PLUMBERS' BRASS WORK, etc.—*continued*

All per dozen	¼ in.	⅜ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdownstopcocksforiron	66/-	95/9	188/-	363/-	522/6	917/6
do. with two unions for lead	89/-	132/-	234/4	472/-	623/6	1,389/6
Double nut boiler screws ...	18/8	26/5	47/6	48/6	67/-	93/6
Heavy Croydon ball valves	77/-	193/6	312/5	568/8	734/10	—
Plumbers' union brass lead to iron	19/6	23/6	38/6	52/10	70/6	165/-
	1½ in.	1¾ in.	2 in.	3 in.	3½ in.	4 in.
Caps and Screws	33/-	40/8	59/6	92/5	118/10	155/3
Brass Sleeves	—	31/11	31/11	56/2	74/10	91/5
	1¼×6 lb.	1½×6 lb.	2×7 lb.	3×7 lb.		
Lead P. trap with brass cleaning screws	68/6	85/6	137/-	233/9		
Lead S. trap do. do.	82/9	102/9	168/3	302/3		

Solder :		s.	d.
Plumbers' ...	1 cwt. lots 320/-	14 lb. lots per lb.	3	7
Tinmen's	„ „ 404/-	„ „ „	4	5
Blow pipe ...	„ „ 407/-	„ „ „	4	6

Copper Tubes and Sheets

Copper tubes BSS 659/1944 on the basic price of 27½d. per lb. plus gauge and manufacturing extras as follows. Minimum quantities, 10 cwt.

	Extra d.	Total per lb. d.	Approx. per ft. d.
¼ in.×19 gauge	16½	43⅞	11⅞
⅜ in.×19 „	14⅝	42	16½
1 in.×18 „	12⅝	40½	25
1¼ in.×18 „	12½	39⅞	30½
1½ in.×18 „	12⅝	39⅞	36½
2 in.×17 „	13⅜	41½	58

Small Quantity extras :

10 cwts. to 5 cwts.	plus ½d. per lb.
5 cwts. to 2 cwts.	„ 1d. „
2 cwts. to 1 cwt.	„ 2d. „

	£	s.	d.
Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras	267	10	0

Zinc

	£	s.	d.
Sheet Zinc, 10 gauge (25 SWG), 5 cwt. lots upwards per cwt.	8	6	6
„ „ 12 gauge (23 SWG), „ „ „ „	8	4	0
„ „ 14 gauge (21 SWG), „ „ „ „	8	2	9

Brass Tube

Brass tubes, basic price, plus gauge and manufacturing extras	per lb.	1	10

LEAD SHEET AND PIPES

Basis selling price to one address in London or Home Counties :

		£	s	d.
Lead Sheet, English, 3½ lb. substance and upwards	per ton	101	0	0
„ Water Pipe, in coils	„	103	5	0
Lead Soil Pipe, 10 ft. or over 2 in. to 4 in. in dia.	„	104	15	0
„ „ „ over 4 in. dia.	„	105	15	0
„ Gas or Untinned Compo pipe...	„	104	15	0

5 cwt. lots and over less 6d. per cwt. off basic prices.

Extras over Basis for quantities under 5 cwt. :

3 cwt. and under 5 cwt.	per cwt.	4	0
1 cwt. do. 3 cwt.	„	6	0

Smaller quantities than 1 cwt. priced specially.

Supplying sheet lead and lead pipes to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.

Allowance for Old Lead, collected, £53 0s. 0d. per ton weighed at buyer's works.

PLASTER, etc.

		£	s.	d.
Coarse Pink in 1-ton loads and over delivered on site	per ton	8	15	0
do. White do. do. do.	„	9	4	9
Sirapite Coarse BSS 1191 Class C do.	„	9	6	9
do. Fine do. do. do.	„	9	14	9
do. Browning BSS 1191 Class B do.	„	9	6	9
do. Board Finish do. do.	„	9	6	9
Blue Lias Lime, in 6-ton loads	„	6	17	6
Hydrated Lime (Grey) in 6-ton loads	„	6	2	0
do. (White) do.	„	6	12	0
Lump Lime (Grey) do.	„	5	19	0
do. (White) do.	„	6	6	6
White Keen's or Parian Cement, in 1-ton loads ...	„	12	13	0
Pink Keen's or Parian Cement, in 1-ton loads ...	„	12	7	9
Granite Chips, in 6-ton loads	„	2	6	9
Hair	per cwt.	4	17	6
Gypsum Plaster Lath or Base Board, ⅜ in. thick, 600 yds. and over in one delivery. Delivered site	per yd.	2	2½	
1,200 yds.	„	2	1½	
do. Insulating do. ½ in. thick, 600 yds. and over in one delivery. Delivered site	„	2	8	
1,200 yds.	„	2	7	
Gypsum Plaster Wall Boards, 3 and 4 ft. wide 6 to 12 ft., ½ in. thick, 600 yds. and over in one delivery. Delivered site	„	2	5½	
1,200 yds.	„	2	4½	
do. Insulating do. ½ in. thick, 600 yds. and over in one delivery. Delivered site	„	2	11	
1,200 yds.	„	2	10	

PAINTS AND DISTEMPER

Delivered London area.		£	s.	d.
Ceiling Distemper	per cwt.	1	7	6
Washable Distemper	„	5	18	0
Gloss Paint	per gal.	2	18	0
Super Snowcem cement paint (in 1 cwt. drums) ...	per cwt.	5	0	0

Lead Products and Oils

		£	s.	d.
Ground White Lead, in 1 cwt. kegs	per cwt.	8	7	6
Genuine White Lead Paint, 1-19 gal. lots in 1 gal. tins	per gal.	3	6	6
Genuine Red Lead, Dry, (1 cwt. lots)	per cwt.	6	17	0
Genuine Linseed Oil Putty, 1 cwt. keg	„	2	13	6
Size XD quality 28 lb.	per tin		9	0
Raw Linseed Oil (5 gal.) drums extra	per gal.		16	9
Boiled Linseed Oil (5 gal.) do.	„		17	8

Sundries

Turpentine substitute (5 gal.) drums extra ...	„	5	4½
do. do. (40 gal.) do.	„	4	8½
Solignum, Brown (5 gal. cans) Exterior	„	10	0
Creosote (40 gal. barrels)	„	2	3
Paste Powder (1 lb. packets)	per lb.	2	4
White Lining Paper	per piece	1	4

VARNISHES, etc.

Delivered London area.		£	s.	d.
Oak Varnish, Outside or Inside	per gal.	2	0	0
Oak, Pale Copal do. do.	„	2	0	0
Hard Drying Oak for Inside	„	2	5	0
Crystal Paper Varnish do.	„	2	8	0
Eggshell Flat Varnish do.	„	2	2	0
Finest Carriage Varnish	„	2	7	0
Front Door Varnish	„	2	4	0
Japan Gold Size	„	1	12	0
Black Japan	„	1	16	0
Brunswick Black	„	1	12	0
Berlin Black	„	1	10	0
Terebene	„	1	12	0
Knotting (1 gal. bottles free)	„	1	15	0
French and Brush Polish (do.)...	„	1	15	0

GLASS

Delivered London area.		s.	d.
18 oz. Sheet Glass Ordinary Glazing Quality—Cut Sizes...	per ft. sup.		10
24 oz. do. do. do. do.	„	1	0½
26 oz. do. do. do. do.	„	1	3
32 oz. do. do. do. do.	„	1	7½
¼ in. Rolled Plate...	„	1	3½
¼ in. Rolled and Rough Cast...	„	1	6½
¼ in. do. do.	„	1	7½
¼ in. Figured Rolled and Cathedral, Standard patterns—			
White Group 1	„	1	3½
do. Group 2	„	1	9½
do. Standard Tints	„	2	1½
do. Special Tints	„	7	3
¼ in. Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating Group 3	„	1	8½
¼ in. Wired Cast up to 50 in.	„	1	10½
¼ in. do. do. 50 in. to 72 in.	„	2	2½
¼ in. Georgian Wired Cast	„	1	11

Hollow Glass Blocks—			
P.B.2 Cross reeded 5¾×5¾×3⅞ in.	each	3	9
P.B.3 Broad reeded 7¾×7¾×3⅞ in.	„	5	9
P.B.32 Cross reeded 7¾×7¾×3⅞ in.	„	5	9
P.B.4 Prismatic 7¾×7¾×3⅞ in.	„	6	6
P.B.5 Flemish 7¾×7¾×3⅞ in.	„	5	9
P.B.6 Boomerang 7¾×7¾×3⅞ in.	„	6	6
Half Size Blocks—			
P.B.32 Cross reeded 7¾×3¾×3⅞ in.	„	4	10
Radiused Corner Blocks to match up with—			
P.B.2 Cross reeded	„	8	1
P.B.3 Broad reeded	„	9	8
P.B.32 Cross reeded	„	9	8

P.B.2, P.B.3, P.B.32 are also supplied in Light Diffusing Blocks at same price.

¼ in. Polished Plate Glass, G.G. quality—			
In plates not exceeding 2 ft. sup.	per ft. sup.	4	7
„ „ „ 5 ft. sup.	„	5	7
„ „ „ 45 ft. sup.	„	7	6
„ „ „ 100 ft. sup.	„	7	6
¼ in. Polished Plate, extra sizes, i.e., plates exceeding 100 ft. sup. or 160 in. one way or 96 in. both ways. G.G. quality—Not exceeding 135 ft. sup. or 240 in. one way or 130 in. both ways ...	„	11	4
Not exceeding 180 ft. sup. or do.	„	15	0

Plates exceeding 180 ft. sup. prices on application.

Substances other than ¼ in. Polished Plate at Special Prices.

Quantity Tariff—Sheet and Sundry Glass.

The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

Description of Glass—	Minimum quantity	per ft. sup. s.	d.
18 oz. sheet O.Q.	3,000		7½
24 oz. „ „	2,000		9½
26 oz. „ „	2,000		11½
32 oz. „ „	2,000	1	3½
¼ in. Rolled Plate...	1,000		10½
¼ in. Figured Rolled and Cathedral Standard Patterns, White Group 1	1,000		10½
do. Group 2	1,000	1	2½
¼ in. Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte Group 3	1,000	1	2½
¼ in. Rolled Plate or Rough Cast	2,000	1	2
¼ in. do. do.	2,000	1	2½
¼ in. Wired Cast, Hexagonal up to 50 in. ...	2,000	1	5
¼ in. do. do. do 50 in. to 72 in. ...	2,000	1	9
¼ in. Georgian Wired Cast	2,000	1	5½

THE BUILDER RATES OF WAGES

AS FROM OCTOBER 2nd, 1961. (Every endeavour is made to ensure accuracy but we cannot be responsible for errors.)

1. Craftsmen and Labourers.

Region	Craftsmen	Labourers
	s. d.	s. d.
England & Wales (Grade A) ...	5 6	4 10½
London	5 7½	5 0
Liverpool and District ...	5 7½	5 0
Scotland... ...	5 6	4 10½

2. Apprentices.

Age	Per cent of Craft Rate	London and Liverpool Dist.	England, Wales (Grade A)
		s. d.	s. d.
15	25	1 5	1 4½
16	33½	1 10½	1 10
17	50	2 9½	2 9
18	62½	3 6½	3 5½
19	75	4 2½	4 1½
20	87½	4 11½	4 9½

3. Young Male Labourers.

Age	Per cent of Craft Rate	London and Liverpool Dist.	England, Wales and Scotland
		s. d.	s. d.
15	33½	1 8	1 7½
16	45	2 3	2 2½
17	66½	3 4	3 3
18	100	5 0	4 10½

NORTHERN IRELAND is not included; rates fluctuate so much from district to district that reference should be made to local offices.
WATCHMEN.—The rates per shift for watchmen engaged on building sites is 30s. 6d. in London and Liverpool District, and 29s. 3d. in the provinces.
FEMALE OPERATIVES.—In all districts throughout the country except in Scotland the rate of wages for women, aged 19 and over, engaged in craft processes is 4s. 7½d. per hour. Women engaged on work other than craft processes, 4s. 3½d. per hour. In Scotland the rate for the woman craftsman is 4s. 10½d. after a probationary period, and the woman labourer, 4s. 4½d.

New Companies

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

ARTHUR EDMONDS CONSTRUCTION CO. LTD.—Regd. Oct. 26. 58 Oakfield-rd., SE20. Secy.: Evelyn Sinclair. Nom. cap.: £1,000.

MARSHALLS OF LUTON (BUILDERS) LTD.—Regd. Oct. 26. Scotson-chmbrs., High-st., south, Dunstable, Beds. Secy.: Isa Marshall. Nom. cap.: £1,000.

P. BOLAND AND SON LTD.—Regd. Oct. 26. Bldrs., etc. Secy.: Audrey P. Boland, 29 Pill-st., Cogan, Penarth. Nom. cap.: £1,500.

RABBETS & WILKES LTD.—Regd. Oct. 27. 268 Bournemouth-rd., Parkstone, Poole. Secy.: H. A. Wilkes. Bldrs., etc. Nom. cap.: £10,000.

F. CONCANNON & SONS LTD.—Regd. Oct. 27. 11 Evershot-rd., N.4. Secy.: P. Concannon. Building and public works contractors at Finsbury Park, N4, etc. Nom. cap.: £200.

HOUSE & TESTER LTD.—Regd. Oct. 30. 10 Godstone-rd., Purley, Surrey. Secy.: Jean House. Bldrs., etc. Nom. cap.: £2,500.

E. R. E. BUILDERS, LTD.—Regd. Oct. 30. Nom. cap.: £100. Dir.: Anthony G. Eastwood, 8 Manston-drive, Parsonage-la., Bishop's Stortford.

ERNEST HARRISON & CO. LTD.—Regd. Oct. 31. Main-st., Menson in Wharfedale, Yorks. Secy.: Nancy Harrison. Bldrs., etc. Nom. cap.: £7,500.

G. & M. BUILDERS LTD.—Regd. Oct. 31. Nom. cap.: £1,000. Dir.: Henry Graham, The Cottage, Park-dr, Forest Hall, Northumberland.

H. A. PETTITT & SONS (BUILDERS) LTD.—Regd. Oct. 31. 'Ashdon,' High-st., Thorpe le Soken, Essex. Secy.: A. J. Conibeer. Nom. cap.: £2,000.

BROWN AND SHAW LTD.—Regd. Oct. 31. Gough-rd., Leicester. Secy.: F. E. Watson. Bldrs., etc. Nom. cap.: £13,000

L SWIFT AND SONS (BUILDERS) LTD.—Regd. Oct. 31. Oxclose-dr., Dronfield-Woodhouse, Sheffield, Yorks. Nom. cap.: £100.

A. H. BRIGHTWELL & SONS LTD.—Regd. Nov. 1. Northway, Harting, Sussex. Secy.: Miss D. Brightwell. Builder at Harting, etc. Nom. cap.: £100.

ROGER WILLIAMS AND SON (BUILDERS) LTD.—Reg. Nov. 1. 424 Wakefield-rd., Bradford. Secy.: Shirley Hart. Nom. cap.: £1,000.

GADD AND WILSON LTD.—Regd. Nov. 1. 85 Ty Box-rd., Pontnewydd, Cwmbran, Mon. Bldrs., etc. Nom. cap.: £5,000.

A.E.S. (BUILDING) LTD.—Regd. Nov. 1. 49 Upper Brook-st., W1. Secy.: Boston Registrars & Nominees Ltd. Nom. cap.: £100.

SEALEY'S (BUILDERS) LTD.—Regd. Nov. 1. 65 Waterworks-rd., Farlington, Portsmouth. Secy.: Joan W. Sealey. Nom. cap.: £1,500.

E. G. KEY & SON LTD.—Regd. Nov. 2. 27 Bates-rd., Coventry. Secy.: A. W. Smith. Bldrs., etc. Nom. cap.: £500

K.B.S. LTD.—Regd. Nov. 2. Bldrs., etc. Nom. cap.: £1,000. Sub.: Mrs. Frances Rose, 26 Musgrave-rd., SE14.

Silicones at Work

Treatment of Brickwork Against Water Penetration

SILICONES—the chemical compounds which make raindrops stand like beads of sweat on the surface of a textile fabric, or which allow an electrical machine to be run at a much higher temperature than would be possible with other types of insulating material—have become a familiar feature of the British market.

In 'Silicones at Work,' a booklet just published (obtainable free from the Library, DSIR, State House, High Holborn, WC1), the Department of Scientific and Industrial Research reviews the industrial applications of these versatile compounds. As an example, at the DSIR's Building Research Station it has been found that brick panels treated with a 5 per cent silicone solution retained a good deal of their resistance to penetration by water even after seven years' exposure; but the booklet contains a warning on the inadvisability of using silicones as a substitute for sound building materials and good design.

FMB Building Study Tour

DURING next February the Federation of Master Builders are running a building study tour to the Far East, Australia and North America. The party will leave London Airport on February 1, visiting Delhi, Bangkok and Tokyo during the first ten days. It will then travel via Hong Kong to Sydney, where it will stay for seven days. The next stage of the tour will take the delegates to Honolulu for a three-day stop before going on to Vancouver and Toronto. The party will finally leave New York on February 28 for London. Further details are available from W. B. Weaver, FMB, 33 John-street, London, WC1.

Recent British Trade Marks

THE FOLLOWING PARTICULARS, which are extracted from the 'Trade Marks Journal,' are reproduced by kind permission of HM Stationery Office. The 'Trade Marks Journal' may be obtained from the Patent Office, annual subscription £5.

LYNX CUB.—820754. Wood flooring. J. A. Hewetson & Co., Ltd. Marfleet, Hull.

MASTIFF.—820755. As above.

VINAZZO.—821774. Non-metallic tiles. Semtex Ltd., 1 Albany-street, London, NW1.

VITRUVIAN.—822025. Floors and floor making materials, wall panelling and wall tiles, none being of metal. James Halstead Ltd., Crow Oak Works, Whitefield, near Manchester.

POLYBIND.—B808485. Binding agents for paints and for similar decorative coatings. Polycell Products Ltd., 73 Highgate-road, London, NW5.

POLYPAINT.—805588. Paint. As above.

POLYPLUS.—807205. All goods included in Class 2 (paints, etc.). As above.

POLYMETAL.—B815699. Metallic cement. As above.

POLYSTEEL.—816692. Cements containing steel for use on metals. As above.

POLYSET.—822130. Cement for building. As above.

POLYFIX.—822131. As above.

POLYGRIP.—822257. As above.

DURAMAS.—819375. Bituminous preparations (not in the nature of paints for use in filling cracks, cavities and the like defects in concrete structures. Duratube and Wire Ltd., 39 Dover-street, London, W1.

HOLMDRIVE.—821172. Concrete piles. Holmpress Piles Ltd., Leads-road, Hull.

OCEANIC.—816247. Paints. Isaac Bentley & Co. Ltd., Vineleo Oil Works, Trafford-park, Manchester 17.

MANALOX.—823541. Non-metallic building materials. Hardman and Holden Ltd., Miles Platting, Manchester 10.

PENTAMATT.—824398. Paints, varnishes, distempers, lacquers, etc. Imperial Chemical Industries Ltd., London, SW1.

FERROBOND.—B817360. Materials for repairing cracks in plaster, cement or concrete surfaces. As above.

COSMO BRAND.—816946. Paints, varnishes, lacquers preservatives against rust and against deterioration of wood, etc. Associated Agencies (Manchester) Ltd., 42 Deansgate, Manchester 3.

CERTILE.—819624. Paints, varnishes, lacquers, enamels and coating compositions. Artrite Resins Ltd., 44 Kingsway, London, WC2.

PENGUIN.—823776. Paints, varnishes, lacquers, enamels, etc. John Mathews & Co. Ltd., Phillips-street, Liverpool 3.

TECHNICAL REVIEW

This Review of plant, equipment and materials—in most cases new or with new features—is intended to give brief details only of the products mentioned. Notices are based on data supplied by the manufacturers. Additional information and prices can be obtained either direct or by using the prepaid Readers' Service form which appears on page 224 of this issue. The form can be used for more than one inquiry.

1. Cladding

A complete system of decorative ribbed ALUMINIUM FACING for building surfaces is provided by nine extruded sections. Some of its applications are wall lining, canopy soffits, column cladding, or as infill panelling in curtain walling. Probably the outstanding feature of the system is its dimensional flexibility. The expander, joint cover, and spacing sections allow the standard panels to be fitted to any length of wall and the ancillary sections ensure continuity of fitting through angles (such as corners) and around apertures (such as doors or windows).

In its natural finish this ribbed aluminium facing is most attractive but it can be supplied anodised so that architects and designers can utilise it to blend with any existing or proposed designs or plans. Fixing is a relatively simple matter; either direct to timber or, by means of plugging, to masonry. If fixed to steel then only self-tapping screws are needed.

James Booth Aluminium Ltd.,
Kitts Green Works, Birmingham, 33.

2. Flooring

A new CONCRETE ROLLER comprises two 39½ in. long, 5 in. dia. rolls with solid ends, but perforated surfaces. These are linked together with an adjustable extendable handle pivoted centrally between the rolls. The perforated surface of the two rolls, when passed over the concrete, smooths out surface irregularities and presses the larger aggregate down, so compacting the concrete and preparing the surface for easy finishing by hand trowel or rotary float. The operation is very simple and in accordance with normal practice. Really dry concrete can be used and is placed, spread and screeded level by normal means without unnecessary attention to the surface finish. Then the roller is passed over the surface backwards and forwards steadily covering the entire area; this operation not only compacts the concrete, but produces a moist sand/cement surface from the driest mixes. This surface is patterned by the perforations of the rolls, and can be left to form the key for a granolithic floor, or as a non-slip surface for pathways and areas. Alternatively it can be floated by hand trowel or rotary float. Extensions to the handle clip in, allowing very large areas to be surfaced without anyone walking on the concrete.

E. P. Allam & Co., Ltd.,
132/135 Sloane-st., London, SW1.

A new roller for compacting concrete

3. Heating

A new range of HEAT PUMPS takes advantage of the fact that heat energy is always present in the atmosphere, even when temperatures are below zero. Like other air to air heat pumps, this range, known as 'Climasol,' will extract from the supply of free heat, boost it up and deliver it into a building for heating purposes. The method on which the heat pump operates is that cold outside air is drawn over a heat exchanger and surrenders a considerable quantity of heat to the refrigerant which is always colder than the air itself. This heat is then carried to a compressor which boosts it in temperature and delivers it to another heat exchanger over which is circulated the indoor air, thus providing a means of heating a building. In like manner, by reversing the process, a heat pump can remove excess heat from indoors and reject it to the outside atmosphere. By using this principle, it is possible in practice to obtain two 'free' units of heat for every unit of heat supplied to the machine: thus a form of heater is obtained capable of an overall efficiency approaching 300 per cent.

One of the advantages of the heat pump is that it can utilise excess heat available in certain rooms for heating other rooms in the premises; for example in restaurants, kitchens can be cooled by extracting the heat and delivering it to the dining area.

Joseph Lucas Ltd.,
Great King-st., Birmingham, 19.

4. Paints

A new quick drying PVA bound WATER PAINT, specially produced for large-area contract work, has recently been produced. The product gives an attractive matt finish for interior walls and ceilings, where it covers well on most types of surface—70-80 square yards to the gallon on normal surfaces; about 50 square yards per gallon on one-coat work. A high titanium dioxide content gives complete one-coat obliteration on many surfaces.

The paint is ready mixed, very easy to use and can be applied with distemper brush, roller or spray equipment. It can be washed if necessary, only 24 hours after application.

John Hall & Sons (Bristol & London) Ltd.,
Hengrove, Bristol, 4.

5. Miscellaneous

A pump island CANOPY has been designed to give maximum protection to motor cars and at the same time accommodate large commercial vehicles. The unit is built only 8 ft. from finished floor level. Its cantilevered overhangs are of uneven lengths; one is 11 ft. which provides complete protection for cars: the other, a short 4 ft. wing, enables larger traffic to pull close in to the pumps. Built of pressed steel and clad with aluminium, the canopies are available in 12 standard designs. They can, however, be built to architects' specifications to fit particular schemes.

Conder Engineering Co. Ltd.,
Winchester, Hants.

Trade News

Change of Address

THE OFFICES of Bovis Ltd. have been moved from Stanhope-gate, W1, to Jameson House, 69 Notting Hill-gate, London, W11, telephone Bayswater 1212.

Plasticisers

SEALOCRETE PRODUCTS LTD. announces that its concrete plasticiser previously sold under the name of 'Plazcrete' will, in future be known as 'Sealoplaz.'

Temperature Control

THE SOFONO SELECTO-HEAT, a temperature control appliance for small bore domestic systems, was developed by Grange-Camelon Iron Co. Ltd. of Falkirk, a Federated Foundries company, and not as stated in our Technical Review of October 27.

Contract to Furnish Laboratory

SHAPLAND & PETTER LTD., of Barnstaple, Devon, manufacturers of 'Raleigh Woodwork,' have been awarded a £76,000 contract for fittings for the new physics laboratory at Nottingham University. The architects are Messrs. Andrew Renton and Associates, and the general contractors Richard Costain (Construction) Ltd.

New Sales Office

THREE SALES DIVISIONS of Allied Ironfounders Ltd., the Domestic Appliance division, the Bath division and the Electrical Appliance division, have moved into a new building in Cadbury-road Sunbury-on-Thames, Middlesex. The three-storey building houses the literature mailing department and store and the Powers-Samas sales-analysis department in addition to the three principal sales divisions. It has a conference room, a staff dining-room and a kitchen.

News in Brief

Loans to Local Authorities

IT HAS BEEN ANNOUNCED by the MoHLG, with reference to its circular no. 48/61 dated October 13, that loans advanced to local authorities as defined in section ten of the local Authorities Loans Act, 1945, from the Local Loans Fund, became subject to the following rates of interest on and after November 11: loans for not more than 15 years, 6¾ per cent; more than 15 years 6¾ per cent.

Hospital Flooring Report

A PROGRESS REPORT of an investigation into 'Hospital Corridor Flooring' carried out at Ashford Hospital, Middlesex, in association with the King Edwards Hospital Fund for London is being published in the November issue of 'The Hospital.'

Business Equipment Trades Association

THE Office Appliance & Business Equipment Trades Association decided at an extraordinary general meeting, on October 30, to shorten the association's name to—'Business Equipment Trade Association.' Mr. Basil J. W. Coxeter, a director of Gestetner Duplicators (B.S.O.) Ltd., has been elected president for 1961-62.

FCEC Safety Booklet

AS PART of its safety campaign the Federation of Civil Engineering Contractors has published a 'Supervisors Safety Booklet' intended for all grades of supervisors from agents to gangers or chargehands. This pocket size booklet (price 5s.) sets out causes of accidents and suggests suitable remedies. It is available from the Federation at Romney-house, Tufton-street, London, SW1.

Labour Recruitment Incentive Scheme

TOTAL CASH PAYMENT of up to £25 is offered to any employee of Black & Decker Ltd. who introduces a new employee to the company. This offer is being made to assist labour recruitment for Black & Decker's expanding production programme in the coming months.

Information for Supervisors

THE INDUSTRIAL WELFARE SOCIETY has published the 1962 edition of its Supervisor's Handbook and Diary. Once again this five-shilling pocket encyclopaedia is excellently produced in a smart maroon cover of washable Dutch balacuir with gold lettering. The handbook contains the usual sections, including advice on report writing, training within industry, examinations in management and supervisory subjects, and accident prevention techniques.

Apprenticeship Awards, 1961

THE WINNERS of this year's apprenticeship awards have been announced by the Eastern Federation of Building Trades Employers. After interviewing several candidates, a place at the Aberdovey Outward Bound Sea School course from August 25 to September 20, 1962, has been awarded to Barry P. Beadle, of 9 Coronation-close, Great Wakering, Essex, a carpenter and joiner apprentice with C. S. Wiggins & Sons, Thundersley, Essex, attending Southend-on-Sea Municipal College.

Reprographic Technology Institute

THE OFFICIAL INAUGURATION of the Institute of Reprographic Technology and election of the council is to take place on November 23. The institute was registered in 1960 to provide opportunities for those engaged in the technology of reproduction in relation to the graphic arts to widen their knowledge, to attain professional status, and also to improve educational facilities and encourage research and development.

Nottingham Direct Labour Decision

NOTTINGHAM corporation estates committee decided recently that their direct labour section would discontinue tendering for further work because their staff of 500 is six weeks behind in maintenance work on council houses and other corporation property. There will be no redundancies of staff, and the matter will be reviewed when arrears have been cleared up. Nottingham has about 33,000 council houses—about one-third of the total houses in the city.

Farm Building Competition

THE SUBJECT of the second national farm buildings competition organised by the Country Landowners' Association is 'Ware Potato Storage on the Farm.' It is open to all potato growers in England and Wales and carries £450 in prize money. The competition is divided into two classes; the first being for new buildings or conversions with permanent thrust-resisting walls, and the second for multi-purpose buildings with or without permanent walls. One of the judges is Mr. W. G. Benoy, ARIBA. Details of the competition, which closes on January 5, 1962, and entry forms may be obtained from Mr. L. W. Gee, The Country Landowners' Association, 24 St. James's-street, London, SW1.

Lakeland Green Slate

Used . . . For wall-cladding, window-surrounds, and cills, steps, coping, flooring, fireplaces . . . In more and more of Britain's most outstanding contemporary buildings—at Coventry Cathedral for instance . . .

Because its natural beauty and colouring remain unaffected or spoiled by weather or industrial dirt and it is able to offer structural strength with immense scope for design . . .

Details and literature from

The Lakeland Green Slate & Stone Co. Ltd.
Coniston · Lancashire.
Tel: Coniston 231 (Office) or Langdale 279 (Quarries)

London Builders' Foremen

'Key Men in the Industry'

GENEROUS SUBSCRIPTIONS from building companies, sub-contractors and the allied trades have enabled the London Association of Builders' Foremen and Clerks of Works to raise approximately £1,500 for its pension fund. This was announced by MR. JOHN B. SUNLEY whilst proposing the toast of the Association in a short, risqué speech during the sixty-seventh annual dinner at the Connaught Rooms on Monday evening (November 13). Mr. Sunley, the chairman on this occasion, reminded his listeners that this would be the last time they would meet under the Association's present title. On January 1 next it would become the Institute of Building Site Management, a title that would more adequately describe the function and status of its membership.

In his response the president, MR. R. A. THOMAS, LIOB, spoke of two logical developments that would follow the new title. First, the restoration of the membership to its original status; and second, the expansion of activities and of membership. The president emphasised the need for increased efficiency. The management of people, he said, was becoming increasingly complex, especially for those in charge of the larger contracts. Mr. Thomas threw a bouquet at Mr. F. H. Gregory who had played an important part in the formation of the new Institute.

Homage to the new IBSM, which was aptly described as Improved Building Site Methods, and to the Common Market, were the keynotes of the next speech, by MR. J. HOWELL, who proposed the toast of 'The Guests.' Ending on a somewhat salutary note, he said that we should welcome the challenge the Common Market would give to site language—Churchillian gestures, possibly, could solve many initial difficulties.

In a rather academic finale to the evening's speechmaking DR. C. A. HART, CMG, TD, DSC, MICE, FRICS, the director of the London Master Builders' Association, touched upon the crux of future trends in the building industry—the restoration of close relationship between the designer and the builder. The realisation that the builders' foremen, by their future designation as site managers, were key men in this industry, he said, was a step in the right direction.

Company News

BAKELITE LTD. has declared an interim dividend of 6 per cent, as during 1960, on the issued ordinary shares of the company. Dividend warrants will be posted on December 1, 1961.

THE VILLIERS ENGINEERING CO. LTD., of Wolverhampton, has formed two new overseas companies with the object of expanding still further their Commonwealth and European trading activities. In New Zealand, in association with F. W. CAVE LTD., their local representatives, they have established VILLIERS ENGINEERING (NZ) LTD., with headquarters in Auckland, while DEUTSCHE VILLIERS ENGINEERING und J.A.P. GMBH, has been formed with headquarters at Am Wall 69, Bremen, to develop sales and build up a service network throughout Western Germany.

THE RAWLPLUG CO. LTD. are to declare an interim dividend of 7½ per cent (less tax) on the ordinary share capital of £900,000 for the year ended Dec. 31, 1961. (1960=Same.)

OVERSEAS BUILDING

From Our Own Correspondents

AUSTRALIA (QUEENSLAND).—A £A3m. improvement plan for the port of Townsville includes a new sea wall and pier, the reconstruction of existing walls, and the reclamation of about 130 scres of swamp land.

BRAZIL.—Cia Brasileira de Alumino plans a hydro-electric station in Sao Paulo.

CANADA.—The Dominion Government is to consider the expenditure of $50m. to assist Canadian universities in the construction of science buildings over the next five years. . . . The Dominion Government has approved $85m. for municipal winter works programmes, the majority of which will be used for construction.

CANADA (BRITISH COLUMBIA).—Plans have been announced for the construction of an Institute of Technology at Vancouver. . . . Construction is being planned for the Woodward Bio-Medical Library and a 400-bed teaching-treatment research hospital at the University of British Columbia.

CANADA (NEWFOUNDLAND).—Confirmation has been given for the construction of a $60m. agglomerating mill, at Labrador City, for Iron Ore Co. of Canada.

CANADA (NOVA SCOTIA).—Texaco Canada Ltd. is to construct a refinery on a 185-acre site near Dartmouth.

CANADA (ONTARIO).—A £1¼m. low-rental housing project of 349 units is to be constructed at Scarborough, Toronto. It will include a 12-storey block, three-storey maisonettes and two-storey houses.

CANADA (ONTARIO).—Three immigration and customs buildings are to be constructed on the new international bridge at Sault Ste. Marie. . . . Provincial Engineering Ltd. is to construct an addition to its works at Niagara Falls.

CANADA (QUEBEC).—First tenders are to be called in January for Montreal's proposed $132m. underground railway. . . . A $20m. electrolic zinc reduction plant is to be constructed at Valleyfield.

CANADA (SASKATCHEWAN).—Construction is to start shortly on a new building for Thomas More College at the University of Saskatchewan.

CHILE.—Industria Pesquera Pisagua of Chile plans a fishing centre and fishmeal factory at the port of Pisagua. The company was recently formed by six Norwegian firms (holding 60 per cent of the capital) and two Chilean firms.

DOMINICAN REPUBLIC.—The Caribbean harbour engineering firm of F. B. Rexach has announced the building of a cement works producing 5-10 thousand bags daily at Barahona.

NEW ZEALAND.—A 12- to 14-storey tower block is included in provisional plans for the reconstruction of the Parliament buildings. The tower, on a 2-storey podium, will replace the present wooden Bellamy's wing. The main building will retain its present external appearance. The reconstruction proposed by Ministry of Works will cost an estimated £1½ to £1¾m.

NORWAY.—Hotel Norge, in Bergen, which was closed down last month, is to be rebuilt by 1964.

WEST GERMANY.—Underground television studios are planned at Stuttgart with administrative offices at ground level.

Australian National Library

CONSULTANT ARCHITECTS to the Australian National Capital Development Commission for the new National Library are Walter Bunning and T. E. O'Mahoney of Sydney. The library, which is to be built near the Parliament House, Canberra, will house the national book collection, and various valuable documents at present kept in different buildings.

Art Centre Foundation

A DONATION of £2.5m. has been made by Sonja Henie, the skating star and her husband, Niels Onstad, to a foundation for the furthering of pictorial art. £1m. of the donation is to be used to build a centre for the foundation on a 30-acre site outside Oslo. It will house an art centre, museum, studios, hostels for visiting students, a library and swimming pool.

S. African Coloured City

A METROPOLITAN CITY to house 1m. coloured people is planned by the South African government committee which is investigating the provision of local government for coloured people.

Capital of a United Europe

PROFESSOR MARSHALL MILLER, the American architect, has been in Munster, W. Germany, to discuss his plan for a capital of a United Europe on the Moselle river. He considers that none of the existing capitals or great cities is suitable for this purpose. A dam in the Moselle, however, would form a lake around which a new city could be built between Germany, France and Luxembourg.

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SCOTTISH BUILDER

Estimates for Design

CRITICISM OF local authority policy in asking bids for development work which included architectural design was made by MR. THOMAS CORDINER, president of the Royal Incorporation of Architects in Scotland, when he spoke at the Scottish Building Contractors Association dinner. He thought that the method of tendering was open to serious abuse. The local authority should either approve an architectural scheme and invite tenders for it, or settle financial terms and then invite the developers to submit architectural schemes.

Houses for Sale

EAST KILBRIDE DEVELOPMENT CORPORATION is offering its first houses built for private purchase at prices ranging from £3,450 for 5-apartments, semi-detached, to £4,650 for 6-apartments, detached, each with garage. An initial development of 28 houses, designed by the corporation, is being built at Spean-ave. and Almond-dr., in the Calderwood neighbourhood. The specifications are given in a catalogue published on October 24.

New Buildings

GLENROTHES NEW TOWN.—Planning approval has been granted by Fife CC to the New Town Corporation for 20 houses and 28 lockup garages at Auchmuty 10th Development, and 8 houses at Dovecote Park 3rd development.

GLASGOW.—The Corporation has received a new estimate for the construction of twin tunnels now being built under the Clyde at Linthouse-Whiteinch of £9.7 million which is £1 million more than the original 1957 estimate. . . . Marten Development Co. Ltd. is to build a 9-storey, 49-bedroom suite hotel at Bath-st./West Nile-st. on an existing office block site. Planning permission has been asked for John P. Coia is the architect. . . . Scottish Brewers Ltd. has received approval for a modern hotel block at 905-932 Sauchiehall-st. . . . Mr. Reo Stakis has received permission for a further hotel project at 470 Kilmarnock-rd. . . . The Scottish Special Housing Association is to develop Broomhill estate for the Corporation, with 683 flats in five 18-storey, three 8-storey and three 4-storey blocks. Cost of the scheme is £2m. Five mansion houses and 61 prefabs will be demolished to make way for the scheme. Mr. E. Buteux, chief architect, SSHA, will co-operate with Corporation officials on the scheme. Work will begin early next year and be completed in early 1964. . . . The Corporation is planning 169 houses for the Pollokshaws redevelopment. Several Trades contracts are proposed. Applications to the City Architect, Glasgow, by Nov. 30.

KIRKCALDY.—The Corporation plans 85 houses in the Nicol-st. redevelopment area. Applications to the Town Clerk or Burgh Engineer, Kirkcaldy, by Dec. 1.

LOCHGELLY BURGH.—Planning approval granted for 30 Weir houses being 2nd phase of the re-development of Golf Course housing scheme.

UPHALL.—West Lothian CC is planning a group of 44 houses and one shop at Uphall Station.

THE BUILDER CONSTRUCTION NEWS

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list, see previous issues. Those preceded by the symbol (A) are advertised in this number. The latest date for the receipt of tenders or applications appears above each paragraph. The symbol (R) preceding each entry indicates that applications must be received by this date.

BUILDING

NOVEMBER 21

(AR) SOUTHEND-ON-SEA CBC.—Proposed new youth centre at Elm-rd., Leigh-on-Sea. Boro' A. Dep. £2.

NOVEMBER 22

(AR) LEEDS REGIONAL HOSPITAL BD.—Fixed price tenders for a new nurse training unit at Menston Hospital. A to Bd. Dep. £2 2s. Tenders by Dec. 18.

NOVEMBER 24

(AR) HAMPSHIRE CC.—Erection of South Ham jun. sch., Basingstoke. County A. Dep. £2 2s.

(AR) NEWCASTLE REGIONAL HOSPITAL BD.—New nurses' teaching centre at Winterton Hospital, Stockton-on-Tees. Sec. to Bd.

(AR) OXFORD CITY C.—Firm price tenders for: (a) 12 shops with maisonettes over, garages at rear and public conveniences adjoining, at Blackbird Leys estate; (b) five shops with maisonettes over and garages at North Oxford "b" estate. City A & Planning Officer.

NOVEMBER 27

(AR) HAVANT & WATERLOO UDC.—Design and erection of a prefabricated fitters' shop at Park-rd north, Havant. E&S.

(A) LEATHERHEAD UDC.—Erection of one pair of shops and flats at Stonny Croft, Ashtead. E.&S. Dep. £2 2s.

(AR) PORTSMOUTH CITY C.—(a) Erection of 178 dwellings at Prospect Farm; (b) home for 35 aged persons at Prince George-st. City A. Dep. £1 (each contract).

NOVEMBER 28

BELFAST CITY C.—Erection of: (a) 9 flats at Edenvale estate; (b) 18 flats at Whitewell-rd.; (c) construction of roads, sewers and ancillary works at Ardgowan-st./Hillsborough-dr. City Architect's Dept., Housing Section, 97 Townsend-st., Belfast 13. Dep. £5 5s. (each contract).

NOVEMBER 29

(AR) DURHAM CC.—Erection of new library at Brandon. County A.

(AR) HAMPSHIRE CC.—Erection of new schools at Havant and Gosport. County A. Dep. £2 2s.

NOVEMBER 30

(A) BASILDON UDC.—(a) Erection of a cricket and hockey pavilion at Mopsies recreation ground. (b) Erection of a community centre at Narket-rd., Wickford. E&S. Dep. £2 2s.

(AR) DENTON.—Erection of St. Thomas Moore RC sec. sch. for Salford RC Diocesan Trustees. Mather & Nutter, chartered architects, Canada House, 3 Chepstow-st., Manchester 1.

(A) EAST RIDING OF YORKSHIRE CC.—Provision of additional office and strong accommodation at County Hall. County A.

(A) NEW SARUM CITY C.—Conversion of Odeon cinema, Fisherton-st. for use as city hall. City E&S.

(A) SOUTHEND-ON-SEA CBC.—Proposed paved area at Westcliff high sch. for girls. Boro' A.

DECEMBER 1

(A) LYMM UDC.—Erection of 28 housing units at Sandy-la. John Mather & Associates, chartered architects, Walton Lodge, Hill Cliffe-rd., Walton. Dep. £5 5s.

(A) MALVERN UDC.—Fixed price tenders for 24 two-storey flats at Sherrards Green-rd. S. & Water E. Dep. £2 2s.

(AR) PORTSMOUTH CITY C.—Modernisation of pre-war flats at Denmead House, Landport (23 flats). Director of Housing. Dep. £1.

DECEMBER 4

(A) NORTON-RADSTOCK UDC.—Erection of 22 old people's flatlets and warden's house at St. Chad's, Midsomer Norton. Miles & Wills, architects, 18 Gt. George-st., Bristol 1. Dep. £3 3s.

DECEMBER 5

(A) ALDRIDGE UDC.—Fixed price tenders for public conveniences at Croft Parade, Aldridge. E&S. Dep. £2 2s.

DUBLIN (Eire) CITY C.—Erection of three 5-storey blocks containing 73 dwellings at North Strand housing area. City Treasurer. Dep. £15 15s.

DECEMBER 6

(A) BATH CITY C.—Conversion into maisonettes and flats at Paragon. Surveyor of Corporate Property. Dep. £2 2s.

NEWRY (N. Ireland) RDC.—Erection of 104 houses at Cloughreagh, Bessbrook. Clerk of Council. Dep. 10 gn.

(A) OLDHAM CBC.—Structural alterations and additions to Women's Institute, Chaucer-st. Cameron & Middleton, engineers, 21 Queen-st., Oldham. Dep. £2 2s.

(AR) OXFORDSHIRE CC.—Erection of school buildings, police houses, etc. (eight contracts). County A.

DECEMBER 7

(A) WOKING UDC.—Erection of three staff houses at Send Corner. E&S. Dep. £2 2s.

DECEMBER 8

(A) ABERDARE UDC.—Conversion of premises at Penywaun, into a hairdressing salon. E&S. Dep. £1.

DECEMBER 15

(A) BOURNEMOUTH CBC.—Fixed price tenders for a police station at Winton. Boro' A. Dep. £2 2s.

DECEMBER 16

(A) MAIDSTONE BC.—Erection of 12 houses at Park Wood estate. Boro' E.

DECEMBER 29

(A) WIDNES BC.—Erection of eight bungalows at Crow Wood-la. Boro' A. Dep. £10 10s.

JANUARY 10

(A) SOUTHPORT CBC.—Extension to Canning-rd. 'bus depot. Boro' A & TP Officer.

NO DATE

(A) CORBY DEVELOPMENT CORPN.—Erection of 189 houses and 120 garages at North Lawn housing. Gen. Mgr.

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SERVICES, PAINTING, MATERIALS, ETC.

NOVEMBER 30

(A) EAST RIDING OF YORKSHIRE CC.—Installation of engineering services at Hemingbrough county prim. sch. County A.

DECEMBER 4

(A) WREXHAM BC.—Fixed price tenders for the manufacture and delivery of 131 wrought iron gates for housing contracts. Boro' E&S.

DECEMBER 6

(A) WOOD GREEN BC.—Redecorations at Western-rd. baths. Boro' E&S.

DECEMBER 18

(A) NORTON-RADSTOCK UDC.—Improvements to 20 pre-war council houses at West Hill-gdns., Radstock. Housing Dept. Dep. £2.

JANUARY 10

(A) SOUTHPORT CBC.—Sub-contract work for extensions to Canning-rd. 'bus depot. Boro' A & TP Officer. Dep. £2 2s.

MUNICIPAL AND CIVIL ENGINEERING WORKS, ETC.

NOVEMBER 30

NARBERTH RDC.—Eastern Gleddau abstraction scheme: Fixed price tenders for the construction of a river intake, reinforced concrete pumping station, 8,000 ft. of 8 in. asbestos-cement rising main, treatment plant house, and other appurtenant works. Ward, Ashcroft & Parkman, engrs., 38 The Temple, Dale-st., Liverpool 2. Dep. £5 5s.

DECEMBER 5

NEWCASTLE-UPON-TYNE CITY C.—Laying of approx. 18,000 sq. yd. of 10 in. thick reinforced concrete deck slab, transit shed foundations, about 1,768 lin. yd. of single line dock rail and crane tracks, and appurtenant drainage and other works, for the Corporation quay extension. City E. Dep. £5 5s.

DECEMBER 6

MID-GLAMORGAN WATER BD.—Construction of a 3 million-gallon capacity mass concrete service reservoir, with reinforced concrete roof, with the construction of valve house, certain auxiliary reinforced concrete chambers, and other ancillary works at Bridgend. Thomas & Morgan & Ptnrs., engrs., 23 Gelliwasted-rd., Pontypridd. Dep. £5 5s.

GENERAL BUILDING WORK (LONDON)

BATTERSEA.—New Housing Scheme.—The LCC housing committee have approved plans for the development of three housing sites amounting to about 4½ acres between Savona-st. and Stewart's-rd., Battersea, by the erection of 140 dwellings (including 104 in two 11-storey blocks) and ancillary buildings at an estimated cost of £531,700. . . . A scheme has been approved to eliminate the staggered crossing at the intersection of Lavender Hill with Elspeth-rd. and Latchmere-rd., Battersea. Cost of the improvement including the acquisition of property, is estimated at £38,000.

CAMBERWELL.—Hospital Extension.—One of London's leading teaching hospitals, King's College, Camberwell, is getting a 'face-lift' as a preliminary to a £3½ million improvement and extension scheme to be spread over ten years.

CHELSEA.—Planning Application.—MBC raise no objection to a proposal to erect a school of art, fire station and college extension at Manresa-rd./Dovehouse-st./King's-rd.

GREENWICH.—Planning Application.—The LCC has received a town planning application from Everson & Seerles for maisonettes and garages at Reaston-st./Avonley-rd./Barlborough-st. for BC.

HAMMERSMITH.—Slum Clearance.—The LCC housing committee propose to acquire (by compulsory purchase if necessary) about 2.88 acres (including 2.17 acres comprising

143 unfit dwellings) in Hunt-st., Hammersmith. Besides unfit dwellings this area includes 21 houses, stables, a workroom and stores. The area is zoned for residential development, but the Minister of Housing has been asked to rezone part of it for open space; the rest being zoned for light industrial purposes. About 220 families will be displaced. The estimated cost of acquisition, clearance and partial redevelopment is £96,000.

HAMMERSMITH.—Planning Application. —BC has forwarded a town planning application to the LCC for the erection of a two-storey block of eight old people's flats at Cromwell-ave./Gt. West-rd.

HAYES & HARLINGTON.—School Extensions.—Subject to any necessary consents, Middx. CC approves a proposal to carry out the first instalment of extensions at Hayes and Harlington, Mellow-la. comprehensive school, at an estimated cost of £165,060.

HENDON.—Planning Applications.—MBC has approved a planning application for the erection of offices and church hall, junction of Garratt-rd. and High-st., Edgware. (Detailed plans.) Applicants are Frank Durrant, Westmore & Reeves.

HESTON & ISLEWORTH.—School Extensions.—Middx. CC, subject to necessary consent, has authorised extensions and adaptations to Heston and Isleworth, Bulstrode secondary boys' and girls' schools, at an estimated cost of £286,296.

HOLBORN.—Tram Tunnel.—Work is to start in April on adapting part of the Kingsway tram tunnel for road traffic. In a report to the LCC the roads committee estimates the cost of the conversion at £797,000—£197,000 more than was originally thought. The committee has also approved the layout of a pedestrian subway from Duncannon-st., near St. Martin-in-the-Fields, to Strand underground station. This should help to eliminate the inextricable rush-hour tangle of vehicles and pedestrians in the Strand by Charing Cross station. To encourage people to use the subway the committee has suggested putting showcases in it and is to investigate the cost and income that might come from them. Cost of the scheme is estimated at £315,000.

ISLINGTON.—Planning Application.—A town planning application for the erection of a six-storey block of flats and maisonettes at Essex-rd. has been forwarded to the LCC by the BC.

ISLINGTON.—Dwellings, etc.—The LCC housing and health committees report as to a £56,200 scheme for the erection of a maternity child welfare and school treatment centre, 10 dwellings and ancillary accommodation at the corner of Carnegie-st. and Charlotte-ter., Barnsbury estate, Islington.

LAMBETH.—Housing.—The LCC housing committee propose to convert 274 South Lambeth-rd., a detached double-fronted Georgian house; into 3 maisonettes and 7 flats by the direct employment of labour at an estimated cost of £21,550. The estimated cost exceeds the estimate approved in May, 1960 by £7,420 of which £2,839 is due to increased costs of labour, materials and gas and electric installations, and £2,312 to additional works, etc.

ST. PANCRAS.—Planning Application.—R. Seifert & Ptnrs. have forwarded a town planning application to the LCC for the erection of shops, showrooms and offices at 119-135 Euston-rd.

SOUTHWARK.—Planning Application.—T. P. Bennett & Son have forwarded to the LCC a town planning application for the erection of an office block at Southwark-st.

STREATHAM.—Housing Scheme.—The housing committee of the LCC report details of a £321,300 scheme for the erection of 103 dwellings and ancillary accommodation upon a 5-acre site at New Park-rd., Streatham. The development will comprise 2 4-storey blocks of maisonettes, 2 2-storey blocks of flats (one of them for old people), 2 terraces of houses, 16 garages, 21 tenants' stores, 20 parking spaces and 2 play spaces.

WALWORTH.—School Improvements.—The LCC education sub-committee has approved a scheme costing £247,400 for the erection of new buildings to replace the present upper-school building of Walworth secondary school. A five-storey technical block was provided for the school in 1959 and the lower-school building was remodelled in 1960.

WANDSWORTH.—School Expansion.—The LCC education sub-committee has approved proposals costing £640,550 for expanding Philippa Fawcett Teachers' Training College, Wandsworth. With the new buildings the college will be able to accommodate 400 women students instead of 240 as at present. On the main college site in Leigham Court-rd. will be built a three-storey communal block (with assembly hall, drama hall, dining-hall, common-rooms, etc.) and a teaching block which will be partly three and partly two storeys high. Alterations will also be made to the existing buildings. On Uplands House site in Leigham Court-rd. four 4-storey hostel blocks will be built containing study-bedrooms for 221 students. A block for domestic staff will also be built there and Uplands House will be altered to provide staff flats. A hostel in Leigham-ave. will be altered to provide staff accommodation and study-bedrooms for a further 25 students.

WANDSWORTH.—Planning Application. —A 114ft. office block may be erected at Balham High-rd. A town planning application has been forwarded to the LCC.

WESTMINSTER.—Knightsbridge / Sloane-st. intersection.—An amendment to the Development Plan designating land in the area of the Knightsbridge/Sloane-st. intersection as subject to compulsory acquisition for the purpose of comprehensive development has been submitted to the Minister of Housing and Local Government by the LCC. The town planning committee propose that Hooper's Court, Chelsea, should be included in the area to be designated. . . . Tenders are to be invited for the road works for improvements to be carried out in connection with private developments being carried out in the Victoria area. Estimated cost, excluding pedestrian subways, is £134,000. Work will start next month.

WESTMINSTER.—Leicester-sq. development.—A scheme for redeveloping the old Stagg & Russell site in Leicester-sq. has been put to LCC. It proposes using the site, which is bounded by New Coventry-st., Wardour-st., Leicester-st. and Lisle-st. as a Swiss Centre. Behind the proposal, which has been submitted by David Du R. Aberdeen & Partners, architects, is a consortium of Swiss firms. The centre would include an exhibition hall, with shops, restaurant, offices and car parking. The site is owned by Mr. Charles Clore's company, City & Central Investments, which has earmarked it for an 11-storey building incorporating shops, offices, a bowling alley and a beer garden. The site was bought for £750,000.

Contracts Placed

We are glad to receive from architects and quantity surveyors for publication details of contracts placed to the value of £20,000 or over. Such information should reach the Editor as soon as possible after the contract is signed. Names of the architect and other consultants associated should be given.

(PROVINCIAL)

AMERSHAM.—Bucks. CC has approved the erection of crematorium at Washcock-rd.

ASPULL.—38 semi-bungalows at north of Ratcliff-rd., are proposed by Nine Trees Properties Ltd.

AYCLIFFE (Co. Durham).—Tenders are being invited by Aycliffe Development Corporation, Churchill House, Newton Aycliffe, for the erection of 359 dwellings.

BARNOLDSWICK.—UDC propose the erection of 40 old people's dwellings at Harper-st. redevelopment area.

BASINGSTOKE. — H. N. Edwards and Partners Ltd., 21 Brook-st., Basingstoke, propose erection of 20 maisonettes and garages at Norn House.

BELPER.—A home for old people on the site of Ash House, Field-la., is proposed by Derbys. CC.

BISHOP AUCKLAND.—Shorko Ltd., London, are to erect a factory of 150,000 sq. ft., near Tindale-cres.

BOURNEMOUTH.—The Council has approved extensions to the law courts. The £184,000 scheme, now awaiting Government approval, includes two new courtrooms and a restaurant.

BRACKNELL. — Premier Precision Ltd. considering housing scheme for employees. £500,000 est. . . . Berks. CC to commence work in March on new police divisional headquarters.

BRAMSHOT (Hants.). — Royal Aircraft Establishment propose extensions to their premises.

BRIGHTON.—Planning committee has approved following: Outline application by Trustees of Field Estate for offices, flats and garages in Montpelier-rd., near corner of Western-rd.; outline application from Mrs. E. M. Atelson for a dining club and 4-storey building in Norfolk-sq. at Western-rd. end; application from Bellman and Sons Ltd. to convert premises in St. James's-st. into a supermarket; application to build a new wing to the Old Ship Hotel on seafront; application from Prowting Estates Ltd. to demolish 'Leahurst,' London-rd., and build 88 flats in 4-storey blocks and 49 garages on the site; application from Mr. C. A. Spencer to build 3 shops with living accommodation and one lock-up shop in Ladies Mile-rd.; outline application from R. Green Properties Ltd. to build 17 houses, 17 garages, one shop and one flat on the Hollingbury estate; and application from R. Green (Brighton) Ltd. to build 6 Regency-style houses with garages on site adjoining Wootton House, Old London-rd.

BRIGHTON.—Plans for building projects at the University of Sussex in Stanmer Park have been approved by Brighton's Planning Committee. One is for the development of the valley between Richmond-hill and The Ridge, an area of about 95 acres, which will house the 'halls of residence' for students and staff houses. In addition it is proposed to have new faculty and other buildings and to lay out playing fields. The application was in outline only. Plans have also been approved for the erection of the arts faculty building.

BURY.—H. Dare (Solihull) Ltd. have received planning permission for the erection of 45 houses in Randale-drive, Brook Dene-rd. and Rhodes-drive, Unsworth.

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BURY.—BC is discussing scheme for providing additional aged persons' dwellings.

CAMBERLEY.—Surrey CC is to purchase a site at Portsmouth-rd. for erection of new prim. sch. . . . UDC propose erection of 22 dwellings at Old Dean Common estate and 28 at Chobham-rd. (stage 1).

LINCS.—The Venture Property & Development Co. Ltd. of 3 Buckingham Palace-gdns., London, SW1, which is the property development company of the Chamberlain Group of companies, have recently completed the purchase of the Pavilion Cinema, Doncaster-rd., Scunthorpe, Lincolnshire. The site which also includes garage premises, previously let to Messrs. Kennings, has a frontage to Doncaster-rd. of some 210 ft. and will be developed as a supermarket and a parade of nine shops. The buildings have been designed by the architects to the company. Architect in charge of the project is J. P. Monahan.

LONGDENDALE.—Ches. CC are seeking site for erection of Longdendale sec. replacement school.

LUTON.—Norwich Union Insurance Societies propose a multi-storeyed shop and office block at Stuart-st. and Upper George-st. Architects: Feilden and Mawson, 71a The Close, Norwich.

LUTTERWORTH.—At a rural district council meeting on Nov. 2 it was reported that planning permission in principle had been given for residential development of approximately three acres of land near Ullesthorpe-rd. at Ashby Parva. In passing the plan, the county planning authority had indicated that they would insist upon a high standard of layout and design in view of fears expressed in the village that the erection of some 30 to 40 small houses might affect the character of the village.

MANCHESTER.—Following projects for TC: Replacement of existing Newton Heath/Openshaw Technical high schools by erection of an eight-form entry technical high school on 19½ acres of land at North-rd., Monsall. . . . Regional Hospital Bd. propose the following: Four-storey maternity unit at Hope Hospital, Salford, £400,000 est., five-storey ward block/two-storey operating unit/two-storey pathology laboratory and adaptations at Blackburn Royal Infirmary, £650,000 est. . . . Leslie Jack proposes erection of a 12-storey block of 48 flats and 38 garages at Palatine-rd., Didsbury.

MANCHESTER. — Following for TC: Acquisition of site by CPO for South Hulme sec. sch.; 142 maisonettes, 57 dwellings, 96 flats, 24 aged persons' dwellings, 12 shops and flats and 3 laundries on site bounded by Bradford-rd./Ridgway-rd./Holland-st., Ancoats; residential development at Shawbury-rd., Newall Green; 13-storey block flats and 4 old people's dwellings at Fairbourne-rd., Levenshulme; multi-storey block flats at Handforth overspill site; 215 dwellings, including 10-storey block flats at Oldham-rd./Butler-st. clearance area; aged persons' flats on site of St. James's Rectory, Wellington-st., Gorton. . . . The Express Dairy (Northern) Ltd. propose erection of retail milk depot and office at West-st., Clayton. . . . Manchester & Salford Equitable Co-op. Soc. Ltd. propose conversion of cinema and car park into funeral parlour/offices/Chapels of Repose/garages at Gaumont Cinema, Chorlton-cum-Hardy. . . . Central & District Properties, London, are seeking TP approval for comprehensive redevelopment of site bounded by St. Mary's Gate/Victoria-st., Deansgate, £8m./£10m. est. . . . T. Huskinson & Sons Ltd. propose erection of two-storey premises for offices, garage/store on site of 40/50, Gledenst. and land at rear, Bradford.

MANSFIELD.—BC propose the erection of 50 aged people's bungalows and 24 three-storey flats during 1962, and are acquiring the Empire Cinema for future use.

MATLOCK.—Derbys. CC propose erection of gymnasium adjoining Training College, Chatsworth Hall site, £28,828 est.

MIDDLESBROUGH.—EC has approved sketch plans by the Education Architect (K. J. Caton) for proposed Thorntree Youth Centre.

MIDDLETON (Lancs.).—Following for BC: Approval in principle given to scheme for Town Hall office block, £179,000 est.; redevelopment plan at Gorton-st./Hannah-st.

NELSON.—A new junior school, off Halifax-rd., is proposed by the RC Auth.

NEWBURY.—Berks. CC propose new youth centre at the Waterside Chapel site. . . . BC to proceed with Northbrook-st. improvement scheme. Architect: Raymond Lockyer, Bedford Cottage, Burghfield.

NEWCASTLE-ON-TYNE.—City Architect (G. Kenyon) has prepared outline plans for nine shops, library, Post Office and 72 flats at Fawdon Park-rd. . . . C. S. Errington, 46 Grainger-st. west, Newcastle-on-Tyne, prepared plans for offices, warehouse and factory at Fisher-st. for Hindhaughs Ltd.

NOTTINGHAM.—Crosland Filters Ltd. propose erection of new offices and factory at Broadway.

OLDHAM.—BC propose extensions to workshop of College of Further Education. £43,500 est.

OLDHAM.—Brador Estates Ltd., London, propose erection of departmental store at Market-pl. . . . Oldham Industrial Co-operative Soc. Ltd. propose alterations and conversions at Hollingwood/Tamworth-st.

ORMSKIRK.—County & New Town Properties Ltd. propose conversion of 'The King's Arms' hotel, Burscough-st., into 2 shops and store. . . . A scheme for erection of 4-storey flats in Green-la. being considered by UDC.

OSWESTRY.—The Hospital Management Committee propose erection of research block, adjoining Orthopædic Hospital, £47,000 est.

PARBOLD.—RC Auth. propose erection of new prim. sch. on 3 acres land at Alder-la.

PETERLEE (Co. Durham).—Negotiations are taking place between Peterlee Development Corporation, Government departments and a firm proposing to establish a light engineering factory in the Peterlee area. The name of the firm, or the exact nature of its products, have not been stated, but if the plans materialise, a large works to employ 5,000 people will be built.

PORTSMOUTH.—Work has started on building new St. Edmunds RC sch., est. £320,000, in Arundel-st., Landport, to replace St. John's secondary. It is hoped that the building will be completed in 1963. The school will be a mixed secondary modern and is designed to accommodate 600 pupils. . . . Portsmouth Group Hospital Management Committee has approved the provision of a self-contained separate main maternity unit with adequate ante-natal beds and premature baby unit at St. Mary's Hospital.

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PRESTEIGNE.—Radnorshire EC are negotiating for a site for the erection of a new primary school.

PRUDHOE (Northumberland).—Newcastle-on-Tyne Regional Hospital Bd. are to proceed with further extensions to the Prudhoe and Monkton Hospital. Plans have been prepared by the Chief Architect (P. H. Knighton) for new workshops, sports pavilion, clothing department and shops, and alterations to the administrative block, while S. W. Milburn & Partners, Esplanade, Sunderland, have prepared plans for two 25 bed villas, and one 50 bed villa, and other smaller items. Tenders are being obtained.

READING (Berks.).—Work is to start shortly on the erection of a £400,000 11-storey office building for Marcus Investments (Reading) Ltd. Architects are Hector Hamilton Associates. QS are Watkins & Decker. Tenders are being invited.

RICHMOND.—BC propose erection of 84 dwellings in 1962 programme, and erection of old people's centre at Sheen-rd.

ROCHDALE.—BC propose the erection of 300 dwellings during 1962.

SALISBURY.—TC propose following in 1962 programme: 66 dwellings to replace prefabs at Devizes-rd.; 8 bungalows and 20 one-bedroomed flats for aged persons at West Harnham; 7 houses, 46 maisonettes and 24 aged persons' flats at The Friary.

SHEFFIELD. — Town Centre Securities Ltd., Leeds, propose erection of supermarket and shops at Attercliffe-rd.

SOUTH MORETON (Berks.).—A. W. & T. Hedges propose housing development at rear of Sands-rd. Inquiry held.

SOUTH SHIELDS.—A three-storey car park is planned by the TC on the site of the former Queens Theatre, Mile End Road, South Shields. A report on the project has been prepared by the Borough Engineer (John Reid).

STANDISH.—Following for RC Auth.: Convent for Sisters of Notre Dame on 19 acres land, fronting Standish Wood-la.; grammar school for girls on 18 acres land at Roundmoor Farm, off Wigan-rd.

SUNDERLAND.—A fire station to serve the Grindon area is to be built by the TC at a cost of £35,000. The work will be included in the Corporation's building programme for 1962-65. . . . Tenders are being invited by the TC for the erection of 156 dwellings in the Parade area, and 176 at Coronation-st.

SWINTON & PENDLEBURY.—BC has received Ministry approval for erection of 18 houses/roads/sewers at Clifton (Rake-la.) estate. £28,577 est.

TWYFORD (Berks.).—Cambrian Concrete Co. Ltd. propose erection of 80/90 houses on a site between Waltham-rd., New-rd. and the railway. Inquiry held.

WALLASEY. — City Centre Properties Group propose shopping centre redevelopment plan. £3m. est.

WATFORD.—Hertford Handbag Co. Ltd. propose new 3-storey building on the site of the Queens Arms, St. Albans-rd. Architects: Lovett Gill & Partners, 41 Russell-sq., London, WC1.

WEST HARTLEPOOL. — TC proposes maternity and child welfare centre at Seaton Carew.

WEST RIDING.—Scheme for 14 youth council projects in various areas has been approved by CC.

WINCHESTER. — CC has approved in principle rebuilding plans for the Brooks area. The plan is a modification of the original scheme prepared by the late Sir Patrick Abercrombie and shows residential precinct of 3-storey flats enclosed with a boundary wall. Altogether 222 flats with garage accommodation are proposed, est. £750,000. The plan involves the complete reconstruction of the 8-acre area bounded by Middle-Brook, Union & Eastgate streets. Talks are now to be started with the Hampshire Planning Authority, MH&LG and MoT in the hope that the scheme will be under way within the next five years. The consultant-architect is Mr. Peter Shepheard. . . . CC is to raise no objection to plans for a remand centre for boys at HM Prison in Romsey-rd. . . . CC has approved planning application for self-service retail shop with restaurant at Nos. 9-11 High-st.

TENDERS

(A) Denotes *accepted.*
(PA) Denotes *provisionally accepted.*
(RA) Denotes *recommended for acceptance.*
(AM) Denotes *accepted subject to modification.*
(GD) Denotes *accepted subject to approval by appropriate Government Department.*

ASHTON-UNDER-LYNE.—Erection of 200 'Homeville' dwellings at Yee Tree estate Dunkinfield for TC. (GD) T. Partington & Sons Ltd., £298,860.

BELMONT (Surrey).—Occupational therapy unit at Belmont Hospital for the Regional Hospital Bd. (A) Truett and Steel Ltd., High-st., Thornton Heath, £52,705.

BILSTON.—Erection of 100 dwellings, 8 housing units and 10 bungalows at Bradley-la. south. (A) Five Oaks Estates Ltd., Coseley, £242,647. Erection of 84 houses, 57 housing units and 10 bungalows at Bull-la. (A) Five Oaks Estates Ltd., Coseley, £294,548, both for BC.

BIRMINGHAM.—Following for City C: Erection of shops, dwellings and garages at Rednal-rd., Highcroft estate. (A) Gilligan Bros., £75,222. Erection of 60 dwellings at Highgate area. (A) A. Langley, Birmingham 11, £173,197. New Register office for births, deaths and marriages. (A) W. Neenam, West Bromwich, £52,756.

BIRMINGHAM/PRESTON.—Foundations for seven bridges on the M6 Birmingham to Preston motorway for MoT. Const. engrs.: Scott and Wilson, Kirkpatrick & Ptnrs. (A) Sir Lindsay Parkinson & Co. Ltd., £100,000.

BRISTOL.—New warehouse at St. Thomas-st. for Iron and Marble Co. Ltd. (A) Wilkins and Coventry Ltd., 91 Cumberland-rd., Bristol.

CANNOCK.—Fixed price tenders for 104 dwellings and 37 garages at Belt-rd., Wednesfield, for UDC. A: H. Wilcox. (A) Messrs. Percy W. Cox Ltd., Grove-la., Handsworth, Birmingham 21, £164,590.

CHESTER-LE-STREET.—Erection of 94 houses at Barley Mow for RDC. Architect is F. Bowman, Estate Office, Birtley. (A) Direct labour.

CUMBERLAND.—Sub-trades for new hospital at Hensingham, for Newcastle-on-Tyne Regional Hospital Bd. Plans by C. B. Pearson and Son, Dalton Square, Lancaster, in conjunction with P. H. Knighton, Board's Chief Architect. General contractors: John Laing Construction Ltd., Dalston Road, Carlisle. (A) Matthew Hall and Co., London, £420,832 (mechanical engineering services) and G. Bowman Ltd., Carlisle, £164,873 (electrical installation).

DURHAM.—Erection of Woodhouse Close sec. mod. sch. (No. 2) at Bishop Auckland for CC. (A) Bell and Ridley Ltd., 79 North-rd., Durham, £243,718. Erection of remand home at Penshaw for CC. (A) O. P. Docherty and Son, Hylton-rd., Sunderland, £61,517.

FAILSWORTH.—Erection of 16 single persons' dwellings at Dean-st. for UDC. (A) T. Wood, £21,780.

FARNWORTH.—Erection of 190 dwellings at Plodder-la. south for BC. (A) W. Lionel Gray (1933) Ltd., £312,379.

GATESHEAD.—Construction of playing fields for the Beacon Hill sec. mod. sch. for EC. (A) Landscape Design and Construction Co. Ltd., Durham, £36,510.

GUILDFORD.—Following for Regional Hospital Bd. at St. Luke's Hospital. Ward improvements to main block. (A) Caesar Bros. Ltd., Aldershot. New radiotherapy block. (A) C. Neal & Sons, East Lane, West Horsley, £29,921.

HAVANT & WATERLOO.—Erection of eight flats and 12 houses, etc., at Cunningham-rd., Waterlooville, for UDC. (A) J. C. Nicholls, Fitzherbert-rd., Farlington.

ILKESTON.—Erection of 30 dwellings at Kirk Hallam estate for BC. (A) F. Sisson & Sons Ltd.

LAMBETH.—New head office and duty-paid store at Stockwell for Brown and Pank Ltd. Architects: Tripe & Wakeham. QS: F. N. Falkner & Ptnrs. (A) Holland & Hannen and Cubitts (Gt. Britain) Ltd., £618,000.

LETTERKENNY (Eire).—37 houses and development of sites at Ballyboe/Glencar, together with development and other incidental works for UDC. (A) J. W. Cunningham, Main-st., Carrick, Co. Donegal, £59,995.

LIVERPOOL.—Major redevelopment on 21 acre site at Lord-st., consisting of multi-storey flats, municipal offices, bus station, hotel, air terminal and shops for City & Central Investments Ltd., London. (A) Token Construction Co. Ltd., London.

LONDON (Camberwell).—Adaptations to Camberwell school of arts and crafts for education committee, LCC.

Hotson Bros. Ltd.	£28,977
W. R. Oldham Ltd.	26,254
W. S. Barton & Co. Ltd.	26,091
(A) H.C.S. Building Contractors Ltd.	22,768

Architect's comparable estimate is £21,435.

LONDON (City & Westminster).—Road works in connection with 1st stage of Beesborough Gardens improvement, for LCC's roads committee.

T.H. Contractors Ltd.	£75,868
Fitzpatrick and Son (Contractors)	68,268
Alderton Construction Co. Ltd. ...	64,680
(A) Mowlem (Civil Engineering), Ltd.	64,625

Chief engineer's comparable estimate is £64,300.

LONDON (Lambeth).—Erection of 44 maisonettes, 11 garages, etc., at Peckford estate for housing committee, LCC.

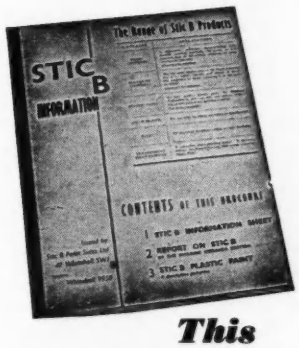
W. J. Whittall & Son Ltd.	£154,163
Truett & Steel Ltd.	152,688
W. J. Simms Sons & Cooke Ltd. ...	149,329
Thomas McInerney & Sons Ltd. ...	148,550
Rowley Bros. Ltd.	146,180
A. T. Rowley (London), Ltd. ...	145,842
W. J. Marston & Son Ltd.	144,121
(A) M. Howard (Mitcham) Ltd. ...	139,995

Architect's comparable estimate is £146,432.

LONDON (Poplar).—Improvements to Bow county sec. sch. for boys for education committee, LCC.

Wm. Shurmur & Sons Ltd.	£33,918
Walter Lilly & Co. Ltd.	33,847
Marshall-Andrew & Co. Ltd. ...	33,478
Patman & Fotheringham Ltd. ...	32,511
Henry Kent (Builders) Ltd.	31,664
Galbraith Bros. Ltd.	31,248
Fredk. Smith & Co. (Builders) Ltd.	31,067
R. J. Truscott Ltd.	30,151
(A) Hammond & Miles Ltd.	29,497

Comparable estimate of Messrs. Hasker & Hall, the appointed architects, is £28,300.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LONDON (St. Marylebone).—Remodelling of Regent's Park county sec. sch. for education committee, LCC.

S. C. Grover, Ltd.	£57,755
Wm. J. Jerram Ltd.	56,324
E. J. Lacy & Co. Ltd.	55,596
Poolman (Builders) Ltd.	54,607
(A) Hammond & Miles Ltd. ...	52,932

Architect's comparable estimate is £56,651.

LONDON (Southwark).—Repairs and improvements to Charles Dickens county prim. sch., for LCC's education committee.

Walter Lilly & Co. Ltd.	£47,740
Walter Gladding & Co. Ltd. ...	47,121
Henry Kent (Builders) Ltd.	46,170
(A) S. C. Grover Ltd.	34,733

Architect's comparable estimate is £39,631.

LONDON (Wandsworth).—Widening of Wandsworth-rd., Lambeth, between Nine Elms railway bridge and Lansdowne Way, for roads committee, LCC.

Fitzpatrick and Son (Contractors), Ltd.	£85,291
Mowlem (Civil Engineering) Ltd.	80,699
Alderton Construction Co. Ltd. ...	80,428
(A) London Paving Co. Ltd. ...	80,029

Chief engineer's comparable estimate is £82,000.

LONDON (Wandsworth).—Expansion of Furzedown training college for LCC further education sub-committee.

E. J. Lacy & Co. Ltd.	£49,950
Walter Llewellyn & Sons Ltd. ...	47,466
Croudace Ltd.	46,926
Rowley Bros. Ltd.	46,468
Thomas McInerney & Sons Ltd. ...	45,750
(A) Kirk & Kirk Ltd.	43,879

Comparable estimate of the appointed architects, Messrs. Leonard Manasseh & Partners is £41,360.

(GD) LONDON (Air Ministry).—Contracts to the value of £4,000 or over for week ended November 10: *Building work:* Valley, Anglesey; Seddon (Stoke) Ltd., Stoke-on-Trent. Halton, Bucks.; Jesse Mead Ltd., Chesham, Bucks. Edinburgh (Turnhouse), Midlothian; W. & J. R. Watson, Edinburgh 12. London (Heathrow) Airport, Middx.; George Wimpey & Co. Ltd., London, W6. *Civil engineering work:* Fauld, Staffs.; W. A. Dawson Ltd., Luton, Beds. Filton, Glos.; A. Monk & Co. Ltd., London, SW1. *Artificers work:* Mount Batten (Plymouth) etc. & Hurn, Hants. etc.; Wilcocks & Stephens Ltd., Paignton, Devon. *Painting work:* Weeton etc., Lancs.; M. A. Appleton (Contractors) Ltd., Wolverhampton. Scampton etc., Lincs.; Donald Humberstone Co. Ltd., Louth, Lincs. Watton etc., Norfolk; Fields (Richmond) Ltd., Richmond, Surrey. Kemble, Gloucester; Ian Williams & Co. Ltd., Cardiff. Northolt etc., Middx. & London (Heathrow) Airport; P. J. Hartell (London) Ltd., London, W13.

(GD) LONDON (MoW).—Contracts placed for week-ended November 4: *Cheshire:* Extension to telephone exchange, Hartford; J. H. Molyneaux (Northwich) Ltd., John-st., Northwich. *Essex:* Additional welfare accommodation at branch Post Office, Dagenham; T. G. Waterman Ltd., 187 Whitechapel-rd., London, E1. *Glamorgan:* Concrete weir at Caerphilly Castle; J. A. Crone Ltd., 39 Cathays-ter., Cardiff. *Hampshire:* Erection of telephone exchange at Crown building at Havant; F. J. Privett Ltd., Copnor-rd., Portsmouth. *Kent:* Erection of coastguard houses at Folkestone; J. W. Leech & Sons Ltd., 47 King-rd., Rochester. *London:* Alterations to provide directory enquiry bureau at telephone exchange, Putney, SW; Dennis Price Ltd., Lechmere-rd., NW2. Internal cleaning and decoration at Government Office Building, The Adelphi, John Adam-st., WC2; South London Decorators Ltd., Wandle Way, Willow-la., Mitcham, Surrey. *Middlesex:* External and internal decorations at National Physical Laboratory, Teddington; F. Troy & Co. Ltd., Elmgrove-rd., Harrow. *Staffordshire:* Erection of sorting office at Stoke-on-Trent; Sir Alfred McAlpine & Son Ltd., 49 Waterloo-rd., Wolverhampton. *Sussex:* New motor transport workshop at telephone engineering centre, East Grinstead; Y. J. Lovell (Sussex) Ltd., Elm Hall, Ship-st., East Grinstead. *Worcestershire:* External repairs at Ministry of Aviation, Park View hostel, Malvern; Thos. Broad Ltd., Graham Works, Malvern.

(GD) LONDON (War Dept.).—Contracts placed for week ended Nov. 3: *Berkshire:* Painting work at Arborfield; Fields (Reading) Ltd. Miscellaneous at Shrivenham and Watchfield; H. F. Johnson Ltd., Langley. *Devon:* Building at Exeter; E. B. C. Sleeman Ltd., Exeter. *Co. Down:* Building at Holywood; P. Carvill & Sons Ltd., Warrenpoint. *Hampshire:* Building at Longmoor; Darshot Ltd., London, E13. *London:* Electrical at Woolwich; Freeman Electrical (London) Ltd., London, E1. *Oxfordshire:* Miscellaneous at Bicester; Bosworth Wakeford & Stepnell Ltd., Daventry. *Surrey:* Building at Guildford; F. G. Minter Ltd., London, SW1.

LUTON.—Extensions at Kingsway Works for Laporte Industries Ltd. (A) Morcroft Construction Co. Ltd., London.

MANCHESTER.—Following for TC: Erection of 281 dwellings at Hadfield, Glossop overspill site. (A) Roy & Partners Ltd., Salford. Alterations to Mansfield Lodge, Whalley Range. (A) Peter Coulson Ltd. Alterations to Lily Lane sch., Moston. (A) D. Glendinning, Bury.

MIDDLESBROUGH.—Erection of 126 dwellings and 43 garages at Easterside for CBC. (A) Emco Builders Ltd., Kings-rd., North Ormesby, Middlesbrough, £221,500.

MORPETH.—Construction of supermarket on site of Playhouse Cinema for Laws Stores Ltd., Hawks-rd., Gateshead. Architects: Mauchlen, Weightman and Elphick, 12 Saville Row, Newcastle-on-Tyne. (A) Shields Brothers, Market-la., Swalwell, Co. Durham.

NEWCASTLE-ON-TYNE.—Erection of refectory block at King's College. Architects: Raglan Squire and Partners, and William Whitfield, 3 Hobart-pl., London, SW1. (A) John Laing Construction Ltd., New Bridge-st., Newcastle-on-Tyne, £400,000. Improvements to Glasshouse-st. and St. Lawrence-rd. for City C. (A) Direct labour, £49,825. Proposed improvements at the junction of Ponteland-rd. and Kenton-la., including construction of a roundabout and completion of connecting road from Newbiggin Hall estate to Ponteland-rd. for City C. (A) Direct labour, £91,405 (including £83,405 for road works and £8,000 for land.

NORTHERN IRELAND.—Following for Housing Trust: 89 houses and 15 garages etc., at Newcastle. (A) Dorman Bros., Newcastle, Co. Down; 267 dwellings and 42 garages, etc., at Suffolk (Hillhead). (A) Unit Construction Co. Ltd., Holywood, Co. Down.

NORTHUMBERLAND.—Erection of fire station at Ashington for CC. (A) R. Hush Ltd., Union-st., Blyth, £46,707. Proposed home for handicapped persons at Merley Croft, Morpeth for CC. (A) R. Carse and Sons, Ltd., Bede-st., Amble (estimated cost £44,300).

PONTYPRIDD.—Road improvements at Gyfeillion-gdns./Distillery-rd., Hopkinstown, for TC. (A) Davies Middleton & Davies Ltd., £168,255.

PUTNEY.—Erection of nine-storey block of luxury flats in Westleigh-ave., by Estates Property Investment Co. Architects: Emmerson & Sherlock. (A) A. T. Chown, £150,000.

RICHMOND (Surrey).—Erection of bungalows off Thompson-ave. for BC. (A) C.A.S. (Contractors) Ltd., London.

ST. PANCRAS.—Modernisation of Flaxman-ter. pre-war flats for MBC. (GD) Direct labour, £84,663.

STANLEY (Co. Durham).—Erection of 92 houses and 22 garages on Good-st. housing site for UDC. (A) Direct labour, £159,000.

STOKE-ON-TRENT.—New operating theatre suite, accident unit and ward block at North Staffs Royal Infirmary for Birmingham Regional Hospital Bd. (A) Seddon (Stoke) Ltd., £308,745.

SUNDERLAND.—Erection of six shops and flats at Ravenscourt-rd., Hylton Red House estate, for TC. (A) Wigham and Son Ltd., Hylton, Sunderland, £43,479. Erection of ambulance depot at Hylton-rd. for TC. (GD) G. C. W. Stewart, Ryhope, Sunderland, £27,350.

THETFORD (Norfolk).—Erection of 126 houses and 50 garages, etc. for new and expanding towns committee, LCC.

Tersons Ltd.	£369,972
Leslie & Co. Ltd.	367,888
Rush & Tompkins Ltd.	357,319
R. G. Carter Ltd.	311,518
Walter Lawrence & Son Ltd. ...	306,690
T. Gill & Son (Norwich) Ltd. ...	273,119
W. F. Pointer & Sons Ltd.	268,392
(A) Tooley & Youngs Ltd.	261,987

Architect's comparable estimate is £296,837.

WESTON-SUPER-MARE.—Erection of 88 dwellings and 35 garages. etc., at Oldmixon town development site for BC. Architects: Reginald H. Gallannaugh & Partners, 9 Richmond-st., Weston-super-Mare. QS: Banks, Wood & Partners, 41 Alma-rd., Clifton, Bristol. (A) John Laing Construction Ltd., £174,300.

WOLVERHAMPTON.—New operating theatres at Royal Hospital for Birmingham Regional Hospital Bd. (A) Wilson Lovatt & Sons Ltd., £152,013.

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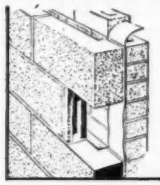

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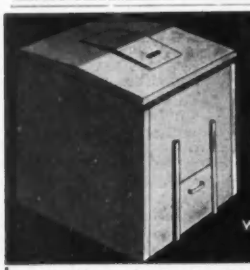

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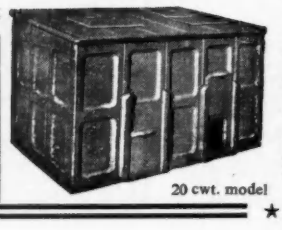

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